

ANNUAL REPORT OF THE
MARINE MAMMAL COMMISSION, CALENDAR YEAR 1983

A REPORT TO CONGRESS

Marine Mammal Commission
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CHAPTER I

INTRODUCTION

Background

This is the eleventh Annual Report of the Marine Mammal Commission, covering the period from 1 January through 31 December 1983. It is being submitted to Congress pursuant to Section 204 of the Marine Mammal Protection Act of 1972.

Established under Title II of the Act, the Marine Mammal Commission is an independent agency of the Executive Branch. It is charged with the responsibility for developing, reviewing, and making recommendations on actions and policies of all Federal agencies with respect to marine mammal protection and conservation, and for carrying out a research program.

Personnel

Three Commissioners, appointed by the President in 1981, continued to serve throughout 1983. They are: James C. Nofziger, Ph.D., (Chairman), Canoga Park, California; Donald K. MacCallum, Ph.D., Ann Arbor, Michigan; and Robert B. Weeden, Ph.D., Fairbanks, Alaska. The Commission's senior staff members are: John R. Twiss, Jr., Executive Director; Robert J. Hofman, Ph.D., Scientific Program Director; Robert Eisenbud, General Counsel; JoAnn Lashley, Administrative Officer; David W. Laist, Special Assistant to the Executive Director; and L. Diane Roberts and Jeannie K. Drevetak, Staff Assistants.

The Commission Chairman, with the concurrence of the other Commissioners, appoints the nine members of the Committee of Scientific Advisors on Marine Mammals, a committee of scientists knowledgeable in marine ecology and marine mammal affairs. At the end of 1983, its members were: David G. Ainley, Ph.D., Point Reyes Bird Observatory; Douglas G. Chapman, Ph.D., (Chairman), University of Washington; Paul K. Dayton, Ph.D., Scripps Institution of Oceanography;

Douglas P. DeMaster, Ph.D., National Marine Fisheries Service, Southwest Fisheries Center; Daryl P. Domning, Ph.D., Howard University; L. Lee Eberhardt, Ph.D., Pacific Northwest Laboratory, Battelle Memorial Institute; Bruce R. Mate, Ph.D., Oregon State University; James G. Mead, Ph.D., National Museum of Natural History, Smithsonian Institution; and William Medway, D.V.M., Ph.D., University of Pennsylvania. During 1983, William F. Perrin, Ph.D., National Marine Fisheries Service, Southwest Fisheries Center, completed his term of service on the Committee.

Funding

The Marine Mammal Commission came into existence during the second half of Fiscal Year (FY) 1974 and was appropriated \$412,000 for that period. Subsequent appropriations were:

FY 75:	\$750,000
FY 76:	\$900,000
FY 77:	\$1,000,000
FY 78:	\$900,000
FY 79:	\$702,000
FY 80:	\$940,000
FY 81:	\$734,000
FY 82:	\$672,000
FY 83:	\$822,000

In FY 84, the Commission was appropriated \$929,000 by the Senate and House Appropriations Committees, which directed that nearly \$300,000 of these funds be used to support work in five areas: the California sea otter; return of management to the State of Alaska; marine mammal/fishery interactions; endangered whales; and Antarctic seals and whales. Further discussion of Commission activities in these areas is included elsewhere in this Report, specifically in Chapter II, Research and Studies Program; Chapter IV, Marine Mammal/Fishery Interactions; and Chapter VI, Species of Special Concern.

CHAPTER II

RESEARCH AND STUDIES PROGRAM

The Marine Mammal Protection Act requires that the Commission maintain a continuing review of research programs conducted or proposed to be conducted under the authority of the Act, undertake or cause to be undertaken such other studies as it deems necessary or desirable in connection with marine mammal conservation and protection, and take every step feasible to prevent wasteful, duplicative research. To accomplish these tasks, the Commission: conducts an annual survey of Federally-funded marine mammal research; reviews and recommends steps that should be taken to prevent duplication and improve the marine mammal research programs conducted or supported by the National Marine Fisheries Service, the U.S. Fish and Wildlife Service, the Minerals Management Service, and other Federal agencies; convenes meetings and workshops to review, plan, and coordinate marine mammal research; and contracts for studies to help define and develop solutions to domestic and international problems affecting marine mammals and their habitats so as to complement the other agencies' activities.

Survey of Federally-Funded Marine Mammal Research

Research directly or indirectly relevant to the conservation and protection of marine mammals and their habitats is conducted or supported by a broad range of Federal departments and agencies. To determine the precise nature of this research and how it can be used to facilitate marine mammal conservation and protection, and to prevent wasteful duplication, the Commission annually requests and reviews information on the marine mammal research programs being conducted, supported, or planned elsewhere in the Federal Government.

In 1983, the Commission requested information from twenty-one Federal agencies and departments. Responses are not due until early in 1984, but at least fourteen agencies are known to be conducting or supporting research relevant to the conservation and protection of marine mammals. Those organizations are: the Department of State; the Minerals

Management Service; the National Institutes of Health; the National Marine Fisheries Service; the National Park Service; the National Ocean Service; the National Science Foundation; the Naval Ocean Systems Center; the North Pacific Fishery Management Council; the Office of Naval Research; the National Sea Grant Program; the Smithsonian Institution; the U.S. Fish and Wildlife Service; and the U.S. Geological Survey. The Minerals Management Service, the National Marine Fisheries Service, and the U.S. Fish and Wildlife Service have the largest and most diverse marine mammal research programs.

When all of the information from the 1983 survey is compiled and verified, the Commission, in consultation with its Committee of Scientific Advisors, will evaluate the information and, as appropriate, recommend steps that should be taken to better develop, focus, and coordinate agency programs.

Research Program Reviews, Workshops,
and Planning Meetings

In 1983, the Commission, in consultation with its Committee of Scientific Advisors, reviewed, commented on, and/or made recommendations concerning: the National Marine Fisheries Service's tuna/porpoise, bottlenose dolphin, Hawaiian monk seal, and North Pacific fur seal research programs; the bowhead whale research programs being conducted and/or supported by the National Marine Fisheries Service and the Minerals Management Service; and the manatee and sea otter research programs being conducted by the Fish and Wildlife Service. The Commission also convened or participated in meetings and workshops to better define and assess information and management needs relative to marine mammal/fishery interactions in Hawaii and in the Bering Sea, to identify research and other issues meriting priority attention to facilitate effective implementation of the Convention on the Conservation of Antarctic Marine Living Resources, and to review and evaluate ongoing research related to the conservation of bottlenose dolphins, bowhead and right whales, North Pacific fur seals, and California sea otters.

Commission-Sponsored Research and Study Projects

The Departments of Commerce and the Interior have primary responsibility under the Marine Mammal Protection Act for acquiring the biological and ecological data needed to protect and conserve marine mammals and the ecosystems of

which they are a part. This responsibility has been delegated to the National Marine Fisheries Service and the Fish and Wildlife Service, respectively.

As noted earlier, the Commission convenes workshops and contracts for research and studies to identify and evaluate threats to marine mammal populations and supports, within its budget limitations, other research it deems necessary. Since it was established, the Commission has contracted for more than 400 projects, ranging in amounts from several hundred dollars to \$150,000. The average contract cost has been approximately \$8,100. Total contract amounts were were: \$258,787 in FY 1974; \$446,628 in FY 75; \$497,449 in FY 76; \$132,068 in the FY 76-77 three-month transition period; \$523,504 in FY 77; \$407,678 in FY 78; \$219,897 in FY 79; \$396,640 in FY 80; \$173,652 in FY 81; \$107,117 in FY 82; and \$211,982 in FY 83.

In many cases, the Commission's investment in research activities is in the form of transfers of funds to other Federal agencies, particularly the National Marine Fisheries Service and the Fish and Wildlife Service. When such funds are transferred, the Commission provides detailed scopes of work which describe precisely what the agency is to do or have done and requirements for reporting on progress to the Commission. In many instances, this approach has enabled agencies to start needed research sooner than might otherwise have been possible, on the understanding that the agency itself will continue project support as long as necessary. The Commission also believes that it is valuable to maintain agency involvement to the greatest extent possible and that such transfers provide a useful means of doing so.

Contract work undertaken by the Commission in 1983 is summarized below. Final reports from Commission-sponsored studies completed in 1983 and earlier are available from the National Technical Information Service and are listed in Appendix B of this Report. Papers based on Commission-sponsored research that have been published elsewhere are listed in Appendix C.

Survey of Federally-Funded Marine Mammal Research
(G. H. Waring, Ph.D., Southern Illinois University)

The Commission, as noted above, conducts an annual survey to identify marine mammal research conducted or supported by other Federal agencies. The contractor is reviewing these efforts and, early in 1984, will submit

a report summarizing information provided by the agencies on their FY 83 and FY 84 marine mammal research programs. The report will be sent to the agencies for verification of the data and will be reviewed by the Commission, in consultation with its Committee of Scientific Advisors, to determine what follow-up actions should be taken to better develop, orient, or coordinate agency research programs. Copies of the final report will be provided to all agencies conducting or supporting marine mammal research and will also be available through the National Technical Information Service.

Protection and Recovery of the Hawaiian Monk Seal
(National Marine Fisheries Service)

The National Marine Fisheries Service is responsible, under both the Endangered Species Act and the Marine Mammal Protection Act, for identifying and taking, or causing other agencies to take, such actions as may be necessary to protect and encourage recovery of the endangered Hawaiian monk seal. In partial fulfillment of this responsibility, the Service has supported relevant studies and constituted a Recovery Team which developed and now oversees implementation of the Recovery Plan. The Plan, completed early in 1983, was reviewed by the Service in consultation with the Marine Mammal Commission, to identify tasks that should be undertaken as matters of priority in 1983. Nine such tasks were identified, but the Service did not have sufficient funds or manpower available to undertake all of them in 1983. Consistent with the expressed wish of Congress, the Commission was able to ensure that these mutually agreed-upon research and management activities be initiated by transferring funds to the Service for their support. The results of the studies and other activities carried out in 1983 will be reviewed in February 1984 and used to update the Recovery Plan and to determine what activities should be initiated as matters of priority during 1984.

Assessment of Oil Spill Risks in and near the California Sea Otter Range
(R. T. Tinney, Jr.)

In 1977, the small, remnant sea otter population in California was designated as "threatened" under the Endangered Species Act, due primarily to the increasing risk of oil spills in and near the population's range. In September 1982, the Fish and Wildlife Service initiated a five-year

status review, as required by the Endangered Species Act, to determine whether changes either in the population or in the threats to the population were such that the population should be removed from the Endangered Species List, listed as "endangered," or continued to be listed as "threatened." To assist in this review, the Commission contracted with the investigator to provide a synthesis of available information concerning the possible or probable sources, number, locations, trajectories, and magnitudes of potential oil spills in and near the California sea otter range. The contract report, published in June 1983, indicated that: tanker traffic past the sea otter range in California has increased, as was anticipated in 1977, and presumably will continue to increase; exploration and development of offshore oil and gas resources near and possibly within the sea otter's range also may increase in the foreseeable future; and there has been a decline in the relative number and probability of oil spills due, most likely, to improved technology and operating experience. The contract report was, in part, the basis of the Commission's 15 December 1983 comments concerning the status of the California sea otter population. Copies of the report were provided to the Fish and Wildlife Service, the Minerals Management Service, the California Department of Fish and Game, industry and environmental groups, and others.

Mapping and Monthly Surveys of Kelp Canopies in the California Sea Otter Range

(R. F. VanWagenen)

Sea otters often inhabit nearshore kelp communities. In order to census sea otters effectively, it is necessary to determine and plot kelp distribution shortly before the census is begun. The objectives of this study were to: conduct an aerial photographic survey and update existing maps of kelp canopies in the California sea otter range just prior to a coordinated aerial/ground census to be conducted jointly by the California Department of Fish and Game and the Fish and Wildlife Service and originally planned for May 1983; and to conduct monthly photographic surveys of selected areas to better define seasonal variability in kelp canopy size and composition to help determine the best time of year to census sea otters. Severe storms in the winter and early spring of 1983 damaged or destroyed many kelp beds and, although the photographic surveys were flown, the coordinated sea otter census was postponed until 1984. Photographic surveys of kelp canopies in the areas between Point Lobos and Point Sur and between Ragged Point and Point San Simeon were conducted at monthly intervals and the resulting

photographs are being analyzed by Fish and Wildlife Service biologists to better determine the extent of damage and rate of recovery to kelp canopies affected by last winter's storms. The results of these assessments will be used to help plan and design the coordinated aerial/ground census now expected to be conducted in the spring or early summer of 1984.

Observations of Gill and Trammel Net Fisheries in and near Morro Bay, California
(J. B. Bishop)

Observations made by California Department of Fish and Game personnel and others in 1982 suggested that entanglement in gill and trammel nets might be a significant cause of mortality of sea otters and other marine mammals in certain coastal areas of California. Since the Department was unable to continue its observations beyond the spring of 1983, the Commission consulted with the Department, the Fish and Wildlife Service, and other interested parties, and contracted with the investigator to continue periodic observations of gill and trammel net fisheries in and near Morro Bay. From May through December 1983, the contractor documented an incidental take of three sea otters, thirteen harbor seals, four harbor porpoise, and seventeen California sea lions in an observed sample of set nets in the study area. The sample suggests that substantially larger numbers of sea otters and other marine mammals are being taken incidentally in the fisheries than had been earlier believed, and the Commission has provided additional funding to continue the observations through August 1984.

Observations of Gill and Trammel Net Fisheries in and near Monterey Bay, California
(T. M. Keating and D. Croll, Moss Landing Marine Laboratories)

The investigators began a study of the incidental entanglement of marine mammals and diving sea birds in bottom gill nets in Monterey Bay in 1981. Late in 1982, fishing activities expanded beyond the confines of the Bay to areas south of Monterey and north of Santa Cruz, but the investigators were not able to continue their observations outside the Bay because of the inadequate size of their vessel. To resolve this dilemma, the Commission chartered the Moss Landing Marine Laboratories' research vessel to provide for periodic monitoring of gill and trammel net fisheries north and south of Monterey Bay once a week for a three-month period. The results of this study and the study

in Morro Bay will be used to better determine the level and significance of the incidental take of marine mammals, particularly sea otters, and measures that should be taken to reduce or prevent the incidental take.

Review of the California Sea Otter Salvage Program
(T. Gerrodette, Ph.D.)

Recovery and necropsy of beach-cast sea otter carcasses can provide useful information on the distribution and relative abundance of the species and on the frequency and causes of mortality. The objectives of this study were to determine the nature and extent of past and present sea otter salvage, necropsy, and related programs conducted by various organizations in California and how existing or planned salvage and related programs might be revised or expanded to provide a more reliable basis for detecting and monitoring changes in the distribution, frequency, and causes of sea otter mortality. The contract report, completed in August 1983, identifies eight actions that could be taken to improve the sea otter salvage/necropsy programs being conducted by the California Department of Fish and Game and the Fish and Wildlife Service. Copies of the report were provided to the Department, the Service, and other interested parties. The studies described in the next two project summaries were undertaken to help answer some of the questions raised in the report.

Trial Systematic Salvage of Beach-Cast Otter Carcasses
(G. L. Jameson)

The number of sea otter carcasses recovered on beaches may be affected by a number of variables in addition to the number of animals being killed or dying of natural causes. The investigator is conducting periodic surveys of selected beaches in the central part of the California sea otter range to determine how recovery rates are affected by the frequency and intensity of searches. The project, begun in October 1983, is providing information on the effects of independent variables on: harbor porpoise, harbor seal, and other marine mammal mortality; the rates and causes of sea otter mortality; and the probability of finding beach-cast animals. Survey results will be reviewed by the Commission, in consultation with its Committee of Scientific Advisors, to determine how salvage data can be collected and analyzed more effectively.

Acoustic Tagging and Tracking of Sea Otters Killed in
Gill and Trammel Nets
(California Department of Fish and Game)

It is not known what percentage of sea otters caught and killed in gill or trammel nets eventually are found cast up on beaches. This might be determined by tracking acoustic pingers (tags) attached to the sea otter carcasses taken from gill and trammel nets. To examine this possibility, the Commission provided the funds for a directional hydrophone, receiver, and acoustic pingers for use in a California Department of Fish and Game study. The study results will be used in conjunction with the data from the salvage/necropsy programs described above to better estimate the numbers of sea otters being caught and killed in gill and trammel net fisheries.

Development of a Long-Range Plan to Detect and Monitor the
Possible Effects of Krill Harvest on Whales, Seals, and Other
Components of the Antarctic Marine Ecosystem
(J. L. Bengtson, Ph.D.)

Existing data and ongoing research and monitoring programs in the Southern Ocean, the ocean surrounding Antarctica, are not adequate to predict, detect, or monitor effects of harvesting and mineral resource activities on Antarctic krill and species which feed on krill. Moreover, it would be prohibitively costly and probably impossible to monitor each species and population that might be affected. The contractor is compiling and evaluating available information on the structure and dynamics of the Southern Ocean ecosystem to determine if any species and populations might be useful indicators of the second-order effects of krill harvesting and how they might be used for this purpose. The report, to be completed in the summer of 1984, will be used to help structure domestic and international research programs to better provide the information needed to conserve living resources in a manner consistent with the Convention on the Conservation of Antarctic Marine Living Resources.

Preparations for the 1984 Meetings of the Commission and
Scientific Committee for the Conservation of Antarctic
Marine Living Resources
(K. A. Green Hammond, Ph.D., Ecosystem Modeling, Inc.)

The third meetings of the Commission and Scientific Committee for the Conservation of Antarctic Marine Living Resources will be held in Hobart, Tasmania, in September

1984. To help prepare for these meetings, an ad hoc group of knowledgeable and interested U.S. scientists will be convened on one or more occasions to review scientific and technical matters to be considered at the Hobart meeting. The contractor will help organize these ad hoc group meetings and prepare the reports to be provided to the U.S. delegation to assist in preparing for the September meetings in Hobart and to interested U.S. scientists to keep them informed of issues being considered by the Commission and Scientific Committee for the Conservation of Antarctic Marine Living Resources.

Factors Bearing on the Status and Future of the North Pacific Fur Seal
(G. L. Swartzman, Ph.D.)

The fur seal populations on the Pribilof Islands have been declining for more than two decades. While seventy percent of the decline can be attributed to commercial harvest of female seals between 1956 and 1968, the cause of the remainder of the decline is uncertain and subject to speculation. The contractor is assessing available information to determine: the likely effect, if any, that termination of the commercial sub-adult male fur seal harvest would have on the rate of population decline or the rate of population recovery if the cause or causes of the decline were eliminated; the supporting evidence and validity of the hypothesis that the ongoing population decline is caused by entanglement in lost or discarded fishing gear; and the probable population size 10, 20, and 30 years from now if the population decline is not halted. The contract report, expected to be completed early in 1984, will be reviewed by the Commission in consultation with its Committee of Scientific Advisors as part of its efforts to determine what additional measures may be effective in protecting and conserving the northern fur seal.

Steller Sea Lion Pup Counts in Shelikof Strait
(North Pacific Fishery Management Council)

The U.S. joint venture fishery for pollock in Shelikof Strait, Alaska, has grown from a catch of about 900 metric tons in 1980 to more than 130,000 metric tons in 1983. Steller sea lions are caught and killed incidentally in the trawl gear used by the fishery. The purpose of this study, sponsored jointly by the Commission and the North Pacific Fishery Management Council, is to determine whether there has been a change in the number of Steller sea lion pups being born in nearby rookeries. The counts will be made

in June-July 1984 and the results will be used, along with other relevant data, to determine if additional studies or regulations are necessary to assure that local sea lion populations are not reduced below their optimum sustainable population level.

Assessment of Marine Mammal/Fishery Interactions in Hawaii
(E. W. Shallenberger, Ph.D., Pacific Basin Maritime, Inc.)

Although it is known that porpoise affect, and are affected by, fisheries in Hawaii, the precise nature and magnitude of the effects are uncertain. This investigator is compiling and evaluating existing information to determine the kinds of additional studies, if any, that would be required to better define the nature and extent of the interactions, the need for mitigation measures, and the likely safety and effectiveness of possible mitigation measures. The study results, expected to be available early in 1984, will be used to identify actions that should be taken by the National Marine Fisheries Service or others to better define or reduce impacts on the affected fisheries or porpoise populations.

Interactions Between Pilot Whales and Fisheries near
Santa Catalina Island, California
(S. H. Shane)

Studies conducted by the California Department of Fish and Game, under contract to the National Marine Fisheries Service, indicate that four to twelve percent of the pilot whales found around Santa Catalina Island may be caught and killed each year in the southern California squid fishery. The size, movements, and productivity of the affected pilot whale population and the precise nature, causes, and effects of the incidental take are unknown. In January 1983, this investigator initiated a three-year study to better determine the number, size, age/sex composition, and discreteness of pilot whales in the vicinity of Santa Catalina Island during the winter months, and the nature, extent, and significance of interactions between pilot whales and the squid fishery in the area. The study was supported by the National Marine Fisheries Service in 1983; in 1984, it is being supported jointly by the Commission and the National Marine Fisheries Service.

Analysis of Photographs and Other Information Concerning
the Identification, Behavior, and Vital Rates of
Humpback Whales in Hawaii

(D. A. Glockner-Ferrari and M. J. Ferrari)

Each winter since 1976, the investigators have conducted detailed observations of humpback whales in the waters off Maui, Hawaii. More than 7,000 surface and underwater photographs of the whales were taken in 1982 and 1983. The Commission provided funds to catalogue and evaluate these photographs and to prepare a report describing the types, objectives, and results of the studies conducted to date. The report, expected to be completed by mid-1984, will be used to help determine what additional research, monitoring, or management programs may be necessary to assure the continued existence and welfare of humpback whales in Hawaii.

Special Research Concerns for FY 1984

As noted in this and previous Annual Reports, substantial additional research is needed to effectively define and deal with a number of problems affecting the conservation and protection of marine mammals. Recognizing that greater efforts are needed in specific areas, Congress appropriated the Commission \$929,000 in Fiscal Year 1984 and directed that about \$300,000 of this be used for research and studies related to: conservation and protection of the California sea otter population; assessment of marine mammal/fishery interactions; facilitating the return of marine mammal management authority to the State of Alaska and other states; protection of endangered whales; and protection of whales, seals, and other components of the Southern Ocean ecosystem.

The Commission, after consulting with its Committee of Scientific Advisors on Marine Mammals, the National Marine Fisheries Service, the Fish and Wildlife Service, the Department of State, other appropriate Federal and State agencies, relevant industry and environmental groups, and other informed groups and persons, will apply the funds to those research and management activities determined to be the most essential.

CHAPTER III

INTERNATIONAL ASPECTS OF MARINE MAMMAL PROTECTION AND CONSERVATION

Section 108 of the Marine Mammal Protection Act directs that the Departments of Commerce, the Interior, and State, in consultation with the Commission, seek to further the protection and conservation of marine mammals under existing international agreements and take such initiatives as may be necessary to negotiate additional agreements required to achieve the purposes of the Act.

In addition, Section 202 of the Marine Mammal Protection Act directs that the Marine Mammal Commission recommend to the Secretary of State, and other Federal officials, appropriate policies regarding existing international arrangements for the protection and conservation of marine mammals.

The Commission's activities in 1983 with respect to conservation and protection of marine mammals in the Southern Ocean, the International Whaling Commission, the Interim Convention on Conservation of North Pacific Fur Seals, and the Convention on International Trade in Endangered Species of Wild Fauna and Flora are discussed below.

Conservation and Protection of Marine Mammals in the Southern Ocean

At least thirteen species of seals and whales, several of which are or were in danger of extinction as a consequence of unregulated or poorly regulated exploitation, inhabit or migrate through the Southern Ocean, the seas surrounding Antarctica. Commercial sealing has ceased and, as is discussed in the following section on the International Whaling Commission, a moratorium on commercial whaling is scheduled to begin in 1986. Consequently, commercial exploitation no longer poses as serious a threat as it once did to the continued existence and well-being of these species. Developing fisheries, however, particularly the fishery for Antarctic krill (Euphausia superba), and growing interest in possible offshore oil and gas resources, could pose new and perhaps more serious threats to marine mammals and other biota of the Southern Ocean.

As noted in previous Commission reports, Antarctic krill occupies a central role in the Southern Ocean food web. It is the dominant herbivore and the principal component in the diets of numerous species, including: fin, blue, humpback, and minke whales; crabeater and Antarctic fur seals; Adelie, chinstrap, macaroni, and rockhopper penguins; several other species of seabirds; and several species of fishes and squid. Some of these species are eaten in turn by sperm whales, killer whales, leopard seals, and other species.

Because of the possible adverse effects of fisheries and offshore oil and gas development on marine mammals, the Marine Mammal Commission, since it became operational in 1974, has undertaken a continuing review of matters that might affect the structure and dynamics of the Southern Ocean ecosystem. It has made numerous recommendations on the need for a comprehensive biological and ecological research program in the Southern Ocean and for international agreements to regulate fisheries and offshore oil and gas activities. Commission activities prior to 1983 have been reported in detail in earlier Commission reports. A brief summary of these earlier activities and a discussion of 1983 activities are provided below.

Activities Related to Living Resources

The need for an international agreement to regulate the harvesting of Antarctic krill and other living marine resources in the Southern Ocean was recognized by the Antarctic Treaty Consultative Parties and, at the IXth Antarctic Treaty Consultative Meeting held late in 1977, it was agreed that a Special Consultative Meeting should be convened to elaborate a definitive regime for conservation of Antarctic marine living resources. Negotiations were begun early in 1978, and the Convention on the Conservation of Antarctic Marine Living Resources was concluded at a Diplomatic Conference held in Canberra, Australia, 7 to 20 May 1980. The Convention entered into force on 7 April 1982, 30 days following deposit of the eighth Instrument of Ratification, and the first meetings of the Commission and Scientific Committee, established pursuant to the terms of the Convention, were held in Hobart, Australia, 24 May to 11 June 1982. The Marine Mammal Commission's activities regarding the negotiations and related matters are described in previous Annual Reports, particularly those for 1980, 1981, and 1982.

The 1983 Antarctic Commission and Scientific Committee Meetings -- The second meetings of the Commission and the Scientific Committee for the Conservation of Antarctic Marine Living Resources were held in Hobart, Australia, 29 August to 9 September 1983. To help prepare for these meetings, on 16-17 February 1983, the National Marine Fisheries Service, in consultation with the Marine Mammal Commission, the Department of State, and the National Science Foundation, convened an ad hoc group of U.S. Antarctic scientists to discuss scientific and technical matters bearing upon issues to be considered during the Commission and Scientific Committee meetings. The report resulting from the scientific working group meeting was prepared by a Commission contractor (see Chapter II of the Commission's 1982 Annual Report) and provided to the U.S. delegation to assist in preparing for the 29 August to 9 September meetings in Hobart.

During its second meeting, the Scientific Committee was able to resolve outstanding issues concerning Rules of Procedure and began consideration of a number of matters bearing upon implementation of the Convention. Discussions focused on three general topics: information and data requirements; research requirements; and management goals.

After initial discussion, an ad hoc working group was constituted to facilitate consideration of data requirements and related issues. The working group's efforts led to general agreement on: forms and procedures for determining the nature, location, and accessibility of existing data from past fishing and scientific activities in the Convention Area; the types of catch, effort, and related biological information that would be desirable to collect during future fishing operations in order to permit the types of stock assessments that ultimately may be necessary; and the types of data from 1982-83 and 1983-84 fishing operations that should be compiled and distributed prior to the next Scientific Committee meeting. It was not possible to reach agreement on the precise types of fishery and related information that would be required to most effectively meet Convention objectives or how such data should be reported and synthesized to best meet the needs of the Scientific Committee and Commission. It was agreed that the ad hoc group would meet in Woods Hole, Massachusetts, 11 to 15 June 1984 to continue its work.

Discussion of research requirements and management goals covered a broad range of topics including: the need to assess the status of certain exploited fish stocks; the possible use of indicator species to detect and monitor the

effects of krill harvesting on dependent and related populations of Antarctic marine living resources; the possible utility of a joint Commission/Committee seminar to consider management objectives and alternative approaches to ecosystem management; and the desirability of providing funds to facilitate preparation and publication of "Species Identification Sheets for the Southern Ocean." It was agreed that: fish stock assessment would be included as a special item on the agenda for the 1984 meeting of the Scientific Committee; to facilitate the assessment, members would review and provide comments, evaluations, and/or data concerning stock assessments done by the BIOMASS Working Group on Fish Biology; the BIOMASS Working Party on Birds and the SCAR Working Group on Seals would be asked for their views concerning the possible use of birds and seals as indicators of the state of the Antarctic marine ecosystem; the SCAR Group of Specialists on Living Resources of the Southern Ocean would be requested to provide copies of the species data summaries currently being updated by members of the Group; and consideration of management goals and the ecosystem approach to management would be included as a special agenda item for the 1984 and subsequent meetings of the Scientific Committee.

The Scientific Committee also considered cooperation with other organizations in accordance with Article XXIII of the Convention, proposals for the establishment of subsidiary bodies, and arrangements for the next Committee meeting. It was agreed, among other things, that: the Committee should continue efforts to develop effective working relationships with the Scientific Committee on Antarctic Research, the International Whaling Commission, the Food and Agriculture Organization of the United Nations, the Intergovernmental Oceanographic Commission, and the International Union for Conservation of Nature and Natural Resources; an Ad Hoc Working Group on Publication Matters would be constituted to consider and make recommendations concerning documentation and publication policy; and the 1984 meetings of the Commission and Scientific Committee would be held in Hobart, 3 to 13 September 1984. */

*/ The reports from the 1983 meetings of the Living Resources Commission and Scientific Committee should be available early in 1984. Copies of the reports and related documents can be requested from the Executive Secretary, D. L. Powell, Ph.D., 25 Old Wharf, Hobart, Tasmania, Australia 7000.

Preparations for the 1984 meetings -- A meeting of the Ad Hoc U.S. Scientific Working Group on the Antarctic was held in Boston, Massachusetts, on 2 December 1983 to begin preparation for the September 1984 meetings of the Commission and Scientific Committee and the June 1984 meeting of the Data Working Group. This meeting, like previous meetings, was organized and sponsored cooperatively by the Marine Mammal Commission, the National Marine Fisheries Service, the Department of State, and the National Science Foundation. As in the past, the Commission provided support for the preparation and review of the meeting report (see Chapter II). A second meeting probably will be held in April or May to review progress in preparing for the September 1984 Antarctic Commission/Committee meetings and to consider scientific and technical matters bearing on the minerals negotiations, described below.

Implementing legislation -- Hearings were held before the House of Representative's Committee on Merchant Marine and Fisheries, Subcommittee on Fisheries and Wildlife Conservation and the Environment, on 30 June 1983 to solicit views on proposed legislation (H.R. 3416). This bill would establish the domestic mechanism necessary to allow the United States to fully participate and to comply with the terms and provisions of the Convention on the Conservation of Antarctic Marine Living Resources. The Marine Mammal Commission testified in support of the proposed legislation and, in its testimony, called attention to the importance of research and to steps that the Commission has taken to better define critical research needs. Among other things, the Commission cited the report resulting from a 1981 National Academy of Sciences study which pointed out: the need for a strong program in Antarctic biological oceanography; the importance of studies of the physical, chemical, and behavioral processes underlying the formation and persistence of krill aggregations; the need to understand processes near the pack ice edge; the potential benefits of remote sensing, moored instruments, drifting buoys, and towed samplers; and the need for a new ice-strengthened research vessel or vessels.

At the end of 1983, H.R. 3416 had been reported to the House of Representatives by the Merchant Marine and Fisheries Committee, but was still pending before the Committee on Foreign Affairs, to which it was also referred.

Activities Related to Non-Living Resources

Activities associated with exploration for and development of non-living resources, particularly offshore oil and gas, could have direct and indirect effects on whales, seals, krill, and other components of the Southern Ocean ecosystem. The Antarctic Treaty Consultative Parties recognized this possibility and, at the XIth Antarctic Treaty Consultative Meeting held in Buenos Aires, Argentina, in July 1981, Consultative Party representatives recommended that a regime on Antarctic mineral resources be concluded as a matter of urgency, that a Special Consultative Meeting be convened in order to elaborate the regime, and that the regime include means for: 1) assessing the possible impact of mineral resource activities on the Antarctic environment in order to provide for informed decision-making; 2) determining whether mineral resource activities will be acceptable; and 3) governing the ecological, technological, political, legal, and economic aspects of those activities determined to be acceptable.

Following the XIth Consultative Meeting, the Department of State prepared and distributed a Draft Environmental Impact Statement (DEIS) on the Negotiation of an International Regime for Antarctic Mineral Resources. The Marine Mammal Commission commented on the DEIS and provided assistance in preparing for the first session of the Special Antarctic Treaty Consultative Meeting, which was convened in Wellington, New Zealand, in June 1982 to begin elaboration of an Antarctic Minerals Regime. It was not possible to conclude an agreed regime at the first session of the Special Consultative Meeting. Informal consultations were subsequently held in Wellington in January 1983 and a second session of the Special Consultative Meeting took place in Bonn, West Germany, in July 1983. A working group, established during the Bonn meeting, will meet in Washington, D.C., 18 to 27 January 1984 to continue identification and discussion of critical issues. The Marine Mammal Commission, as before, will work with the Department of State and other interested Federal agencies to prepare for this meeting.

International Whaling Commission (IWC)

Representatives of the Marine Mammal Commission consulted with the U.S. Commissioner to the International Whaling Commission and others in preparation for the Thirty-fifth Annual Meeting of IWC in Brighton, England, and attended the meetings of the IWC and its Scientific Committee during 1983. The Commission's activities in 1983 regarding the bowhead whale issue as they relate to the IWC are discussed in Chapter VI of this Report. A summary of the Commission's activities relating to other aspects of IWC action in 1983 is set forth below.

The July 1983 Meeting

Representatives of 36 of the 40 member nations participated in the July 1983 meeting of the IWC. A summary of the major actions taken at the meeting follows.

Cessation of Commercial Whaling -- As discussed in the Commission's previous Annual Report, the IWC adopted at its July 1982 meeting a provision banning commercial whaling by all member nations beginning with the 1985/86 pelagic and 1986 coastal whaling seasons and four nations (Japan, Norway, Peru, and the U.S.S.R.) filed objections to the cessation provision, thereby removing the obligation under the Convention for the Regulation of Whaling to comply with that provision.

At the 1983 meeting, there were no proposals to modify the text of the cessation and it therefore remained unchanged. In addition, members took several encouraging steps toward ultimate implementation of the cessation during the course of the meeting. Representatives of Peru withdrew their government's objection to the cessation, thereby joining other nations whose citizens currently conduct whaling operations but will cease commercial whaling when the cessation comes into effect. Representatives of Chile announced that their government had prohibited all whaling by its citizens as of July 1983, thereby voluntarily implementing the cessation in advance of its effective date. Finally, the IWC agreed to a request from Japan to initiate discussions on the concept, methods, and procedures for a comprehensive assessment of whale populations and a consideration of the feasibility of conducting such an assessment by 1985. By terms of the cessation decision, such an assessment must be undertaken by 1990. The IWC established a working group for these purposes which will be convened by Japan before the 1984 meeting.

Catch Limits -- The IWC set catch limits for the forthcoming whaling seasons resulting in a 24 percent reduction in the total limit set at last year's meeting (from 12,371 to 9,390). Among the most significant changes in permissible catch levels were the following: the quota for the northeastern Atlantic minke whale stock taken by Norway was reduced from 1,690 to 635; the quota for the Southern Hemisphere minke whales taken by Brazil, the U.S.S.R., and Japan was reduced from 7,072 to 6,655; the quota for the East China Sea Bryde's whales taken by the Republic of Korea was reduced from 10 to zero; and the quota for West Greenland minke whales taken by Denmark (Greenland) and Norway was reduced from 444 to 300. The quota for 1984 and thereafter governing the taking of the western North Pacific population of sperm whales by Japan had already been set at zero, as discussed in the Commission's previous Annual Report, and this was not modified.

The Cold Harpoon -- The IWC's ban on the use of the cold (non-exploding) harpoon to kill minke whales for commercial purposes became effective at the beginning of the 1982/83 pelagic and the 1983 coastal whaling seasons. At its 1983 meeting, the IWC reviewed the report of a Technical Committee working group on humane killing and information on the extent of compliance with the ban. Particular reference was made to the whaling activities of Japan, Norway, and the U.S.S.R., all of which had filed objections to both the cold harpoon ban and the cessation. Japan was congratulated for its successful efforts to develop an effective and safe exploding harpoon to kill minke whales which had resulted in total compliance with the ban, notwithstanding Japan's objection. Norway pledged its best efforts toward total compliance with the ban during the 1984 coastal season, including final safety testing, production, and distribution of the exploding harpoon that it had developed. The U.S.S.R. reported no progress toward compliance with the ban.

Aboriginal Subsistence Whaling -- At its 1982 meeting, the IWC adopted amendments to its Schedule of regulations setting forth an aboriginal subsistence whaling scheme and procedures for setting catch limits for such whaling in 1984 and thereafter. The amendments codify the IWC's practice of distinguishing between commercial and aboriginal subsistence whaling and attempting, where necessary, to strike a balance between the needs of aboriginal peoples who depend on limited whaling to meet their subsistence, cultural, and nutritional needs and the conservation needs of affected whale populations.

The IWC attempted to implement the aboriginal subsistence whaling scheme for the first time at the 1983 meeting by setting catch limits for Bering Sea bowhead whales, eastern North Pacific gray whales, and West Greenland fin, minke, and humpback whales. These efforts resulted in adoption of a two-year quota for bowhead whales allowing up to a total of 43 strikes during 1984 and 1985 but no more than 27 strikes in either year and a provision for review and amendment of that limit at the 1984 meeting if necessary based upon the advice of the IWC's Scientific Committee. The IWC also adopted catch limits of 179 for eastern North Pacific gray whales, 9 for West Greenland humpback whales, 6 for West Greenland fin whales, and 300 for West Greenland minke whales.

Non-Consumptive Uses of Whales -- The IWC reviewed the report of the June 1983 Conference on the Non-Consumptive Utilization of Cetacean Resources, that is, uses that do not result in an animal's death. Following discussion of the report, the IWC agreed that a working group of interested members would be convened by St. Lucia before the 1984 meeting to examine the recommendations contained in the report, report to the IWC as to such matters as may fall within the competence of the IWC, and identify the financial implications of any activities with respect to those matters. It was also agreed that the establishment of the working group did not imply any position of the IWC with regard to the objectives of the Convention and that the proceedings and report of the working group would not in any way prejudice the position of the IWC or any of its members with regard to the competence of the IWC under the Convention.

Related Activities

Throughout 1983, representatives of the Commission participated in a variety of activities relating to IWC issues designed to achieve acceptance and successful implementation of the IWC's cessation decision when it comes into effect.

As discussed in the Commission's previous Annual Report, the potential adverse impacts of Japan's objection to the cessation upon U.S.-Japanese relations, including fisheries, were noted by members of Congress in the course of Congressional action on 10 December 1982 approving the Governing International Fishery Agreement between the United States and Japan. In April 1983, Japan's allocation of fish that may be caught within the United States' 200-mile Exclusive Economic Zone was reduced by 102,000 metric tons, approximately 9 percent of the anticipated total annual allocation for 1983 which Japan would have received had it not been for its lack of apparent progress in accepting the cessation decision. In addition, representatives of the

Commission joined the U.S. Commissioner to the IWC and representatives of other Federal agencies in frequent bilateral discussions of the whaling issue with representatives of Norway and Japan.

The Commission will continue to consult and cooperate with other agencies and interested groups and individuals during 1984 concerning these and other issues relating to the International Whaling Commission.

Interim Convention on Conservation
of North Pacific Fur Seals

The Interim Convention on Conservation of North Pacific Fur Seals calls for cooperative research and management efforts by Japan, Canada, the United States, and the U.S.S.R. to achieve the maximum sustainable productivity of the fur seal populations of the North Pacific Ocean. The Convention entered into force in 1957 and has been extended by a succession of four Protocols. The most recent extension was agreed to by the Parties on 14 October 1980 and was ratified by the Senate on 11 June 1981. It is scheduled to expire in October 1984.

The objective of the Convention is to establish a cooperative international management system for North Pacific fur seal populations. Harvesting of fur seals at sea is prohibited by agreement of the Parties to the Convention in lieu of a land harvest carried out by the United States on the Pribilof Islands and by the U.S.S.R. on Commander and Robben Islands. For the past ten years, the U.S. harvest has averaged about 26,700 male fur seals annually. The Soviet harvest is currently about 7,700 seals a year. The present world population of North Pacific fur seals is about 1.2 million animals.

During recent years, the North Pacific fur seal has experienced a population decline of 5 to 8 percent per year. While the causes of this decline are not clear, there is evidence indicating that a contributing factor is mortality resulting from entanglement in lost or discarded fishing gear and other debris. The possible effects of such entanglement on northern fur seals as well as other marine mammal species are discussed in detail in Chapter IV of this report.

On 18 February 1983, the National Marine Fisheries Service sent to the Commission and others the draft U.S. position papers and related documents for the annual meeting of the North Pacific Fur Seal Commission, to be held

on 11-15 April 1983 in Washington, D.C. The papers did not adequately address the entanglement problem, and the Commission wrote the Service urging it to plan and convene an international workshop to address aspects of the problem, a proposal first put forth by the Commission in 1982. During informal consultations with the Service prior to the annual meeting of the North Pacific Fur Seal Commission, the Marine Mammal Commission emphasized its concern over the apparent decline of the North Pacific fur seal population and the possibility that entanglement was a major cause of this decline. On 21 April, the Service responded to the Commission, noting that it agreed that prompt and effective action was needed to deal with the serious and continuing decline in the fur seal population and that it was its intention to pursue a number of steps to further protect fur seals, including convening a workshop in August 1983 on the entanglement issue. The Service also committed itself to preparing and making available by 15 March of each year a review of the status and trends of the fur seal population and a plan of action proposed by the agency for the forthcoming year.

The Commission was encouraged by the sense of commitment reflected in the Service's 21 April letter, but felt that, in order to obtain reliable analyses of possible population trends, it was important that immediate steps be undertaken to evaluate: a) the effects of terminating the male harvest; b) the validity of hypotheses linking entanglement with the population decline; c) other possible causes of the decline; and d) the future population size given the present rate of decline. The Commission therefore contracted with an independent scientist to assess available information relating to these points. This research project is discussed in more detail in Chapter II of this Report, and the draft final report, now in the initial stages of review by the Commission and its Committee of Scientific Advisors, will be available in March 1984.

By mid-1983, it was apparent that the National Marine Fisheries Service would not be able to organize and convene a net entanglement workshop in August 1983, as had been initially stated, and that such a workshop would probably not take place until 1984. On 27 September, the Service, with assistance from the Commission, provided a briefing on entanglement problems for representatives of other governments including Canada, Japan, the Republic of Korea, the Soviet Union, and Taiwan. Participants in the meeting were supportive of the idea that there was a need to come

to grips with the issue promptly and that an international meeting of scientific and technical experts seemed an appropriate place to start. As described elsewhere in this report, planning began in earnest in late 1983 for such a workshop in the fall of 1984.

One aspect of the overall problem has been and is that existing data are inadequate to allow informed determinations as to the steps which should be taken to stop and reverse the ongoing population decline. Recognizing this, the Service's National Marine Mammal Laboratory held a workshop, in which Commission representatives participated, on 14-16 November to identify and describe priority research needs. The workshop report was not available at the end of 1983.

Fur Seal Amendments of 1983

The forebears of the current Pribilof residents were brought to the islands by the Russians in the 18th century to work in the fur trade, and the annual harvest of northern fur seals on Pribilof rookeries continues to be a significant revenue-producing activity on the islands. The annual seal harvest, as well as other aspects of the life of the Pribilof residents, has been managed by the Federal Government for many years. In recent years, however, questions have been raised about the long-term benefits of Federal involvement in the Pribilofs which may have hindered the Islands' residents from developing a self-sufficient economy.

On 28 April 1983, following lengthy consideration of the situation by representatives from the Islands, as well as Federal and State of Alaska officials, legislation was introduced in Congress to terminate Federal management of the Pribilof Islands and to assist the residents through a transition period to a self-sufficient economy. It was recognized, however, that the Federal Government has a continuing obligation under the Interim Convention on Conservation of North Pacific Fur Seals to manage the fur seal population and the harvest on the Pribilof rookeries. The amendment, as approved by the House of Representatives on 26 September and the Senate on 28 September, provides for the continuation in full force and effect of all U.S. responsibilities under the Interim Convention.

Renegotiation of the Convention

During 1984, the Interim Convention will come up for reconsideration by the four signatory parties -- Canada,

Japan, the Soviet Union, and the United States. They must decide whether to modify the Convention, extend it in its present form, or allow it to expire. As discussed in previous Annual Reports, the Senate, in ratifying a Protocol in 1981 which extended the Convention until October 1984, also adopted an Understanding that called for certain studies to be undertaken prior to any further renegotiation or extension of the Convention.

On 18 November 1983, the Commission received from the Service a Draft Environmental Impact Statement (DEIS) proposing that the Interim Convention be extended for six years with certain modifications. The proposed modifications, which would be achieved through an exchange of diplomatic notes among Convention Parties, would: 1) allow a harvesting nation (i.e., the United States and the U.S.S.R.) to reduce or suspend the harvest unilaterally in times of emergencies, such as a major oil spill or other toxic spill, which could affect the status of the fur seal herd; 2) require additional research on the current population decline with special emphasis on the problem of entanglement of fur seals at sea; and 3) establish a new Article in the Convention prohibiting disposal of fishing debris at sea.

The Commission, in consultation with its Committee of Scientific Advisors, was completing its review of the document and the proposed actions at the end of 1983. Its preliminary review indicated that the proposed action would be the preferred one if, in fact, it were to lead to the establishment of research, education, and enforcement programs which would assure prompt resolution of uncertainties concerning the rates and causes of the ongoing decline of the Pribilof Island fur seal population and if it were to assure that appropriate and necessary steps would be taken promptly to stop and reverse the decline. It also appeared, however, that the disadvantages of extending the Convention for six years rather than for some shorter period might well outweigh the possible advantages.

With respect to the proposed modifications, the DEIS did not provide sufficient detail on the pros and cons of the proposed alternative actions for these to be meaningfully assessed. Recognizing that the continued existence and welfare of the Pribilof Island fur seal population could well be determined by decisions to be made early in 1984, the Commission was considering recommending that the Service prepare and distribute for review by the Commission and others draft or recommended position papers indicating: a) the precise language of the changes in the Convention text to be proposed to the

other Party Governments; b) when and how the proposed changes would be presented to the other Parties; and c) what actions would be taken if the proposed changes were unacceptable to one or more of the other Parties. At the end of 1983, the Commission expected to transmit the results of its review and its recommendations to the Service in January 1984.

Convention on International Trade
in Endangered Species of Wild Fauna and Flora (CITES)

The United States is a Party to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), which is designed to control trade in animal and plant species which are or may become threatened with extinction. The extent of trade control depends upon the extent to which the species is endangered, as reflected by inclusion in one of three appendices which can be modified by agreement of the Parties. Appendix I includes species threatened with extinction that are or may be affected by trade. Appendix II includes species that, although not necessarily currently threatened with extinction, may become so unless trade in them is strictly controlled, as well as species that must be regulated so that trade in "look-alike" species that are threatened may be brought under effective control. Appendix III includes species that any Party identifies as being subject to regulation within its jurisdiction for the purpose of preventing or restricting exportation and for which the Party needs the cooperation of other Parties in controlling trade.

Overall responsibility for coordinating the development of U.S. positions and implementing the provisions of the Convention is vested in the Fish and Wildlife Service. During 1983, the Commission consulted with the Service on three marine mammal issues in preparation for the Fourth Meeting of the Conference of the Parties to the Convention which was held in Gaborone, Botswana, from 19 to 30 April 1983.

The first issue involved proposals by the Seychelles to add to Appendix I all populations of cetaceans that are regulated by the International Whaling Commission and are not already listed on Appendix I, effective 1 January 1986, and to also add to Appendix I, but effective immediately after the meeting, all populations of Bryde's whales (Balaenoptera edeni), beaked whales (Berardius spp.), and bottlenose whales (Hyperoodon spp.). The first proposal was designed to complement the IWC's decision in 1982 calling for a cessation of all commercial whaling by the 1985/86 pelagic and 1986 coastal whaling seasons and was modified at the meeting to

exempt from the listing the West Greenland population of minke whales which are taken for non-commercial subsistence purposes by Greenlanders. The United States joined with a majority of the other Parties at the meeting in acknowledging that there were circumstances justifying these listings of whales as a special case and both proposals were adopted. Several Parties did not support the proposals, however, and by 29 July 1983 had filed reservations to the listings of cetaceans on Appendix I as follows: Japan and Norway filed reservations to the listing of sperm whales; Austria, Brazil, Japan, Norway, Peru, and the U.S.S.R. filed reservations to the listing of minke whales which will become effective 1 January 1986; Austria, Brazil, and Peru filed reservations to the listing of pygmy right whales which will become effective 1 January 1986; Austria and the U.S.S.R. filed a reservation to the listing of all species of beaked whales, Japan filed a reservation to the listing of Baird's beaked whales, and Austria and the U.S.S.R. filed a reservation to the listing of all species of bottlenose whales; Japan filed a reservation to the listing of some populations of sei whales, while the U.S.S.R. filed a reservation to the listing of other populations of sei whales; Austria, Brazil, Japan, Peru, and the U.S.S.R. filed reservations to the listing of Bryde's whales; and Japan filed a reservation to the listing of all populations of fin whales, while the U.S.S.R. filed a reservation to the listing of some populations and Norway filed a reservation to the listing of other populations of fin whales.

A second marine mammal issue involved a proposal by the Federal Republic of Germany to add all 13 as yet unlisted species of earless seals (family Phocidae), including the harp and hooded seals harvested by Canada, to Appendix II. This proposal was among the most extensively debated issues at the meeting due, in part, to a concern by Canada that it constituted a challenge to the adequacy of its management of the harp and hooded seal harvests and that it would result in giving seal pelts from Greenland free access to the European market while cutting off the Canadian seal pelt trade. The delegation of Sweden proposed that each of the 13 seal species be considered individually on its merits because one or more populations or species might not satisfy the criteria for listing, but this approach was opposed by a majority of the Parties which favored consideration and listing of the whole family as a unit. A vote by secret ballot was therefore taken on the proposal to list the entire family of Phocidae on Appendix II and the proposal was rejected by the Parties.

The final marine mammal issue involved Portugal's proposal to export sperm whale oil under the "pre-Convention exemption" which was discussed in the Commission's previous Annual Report. Although Portugal's proposal was not considered at the meeting, the Parties did adopt a resolution concerning the availability and interpretation of the pre-Convention exemption generally which was substantially consistent with the U.S. position. As a result of that resolution, it would appear that only some of the sperm whale oil which Portugal had proposed to export could be lawfully exported under the pre-Convention exemption. In addition, it appears that the trade restrictions under both CITES and IWC have served to greatly limit or eliminate the market for such oil and that Portugal's sperm whaling in the Azores will therefore be discontinued.

The Commission will continue to consult with the Fish and Wildlife Service, the National Marine Fisheries Service, and others during 1984 concerning these and other matters relating to the Convention on International Trade in Endangered Species of Wild Fauna and Flora.

CHAPTER IV

MARINE MAMMAL/FISHERY INTERACTIONS

Interactions between marine mammals and fishermen have sometimes presented difficult problems for those concerned with protecting and conserving marine mammal populations while making wise use of available fish resources. One of the most widely known examples of this problem -- the interactions between the yellowfin tuna purse seine fishery and porpoises in the eastern tropical Pacific Ocean -- was among the factors that led Congress to pass the Marine Mammal Protection Act of 1972. While substantial progress has been made in recent years to reduce porpoise mortality incidental to this tuna fishery, other serious problems have emerged. As discussed in detail in past Annual Reports, the Marine Mammal Commission has devoted considerable attention and funding to efforts to resolve marine mammal/fishery conflicts. This Chapter provides a brief summary of earlier Commission efforts in the area as well as a description of its activities during Calendar Year 1983.

Background

Interactions between marine mammals and fisheries can take various forms -- sometimes to the detriment of the marine mammal population involved and other times with more impact on the involved fishery. In the former cases, marine mammals can be killed, injured, or harassed, either inadvertently or deliberately, during fishery operations. In the latter cases, marine mammals may take or damage fish on lines or in traps and nets; they may also damage fishing gear during these encounters or when they accidentally become entangled. In some areas, they compete with fishermen for the same fish and shellfish resources.

Prior to enactment of the Marine Mammal Protection Act, regulated and unregulated hunting, bounty programs, and various forms of harassment were employed in a number of areas in an effort to eliminate or reduce marine mammal-caused

gear damage, fish damage, and fish loss. Passage of the Act in 1972 placed a moratorium on such taking and, as a result, over the past decade, animals in some areas appear to have become more numerous and/or bolder in their approach to fishermen and fishing gear.

Although the tuna/porpoise issue is the most widely known marine mammal/fishery interaction problem, it was apparent by the mid-1970s that other marine mammal/fishery conflicts deserved attention as well. In 1977, the Commission sponsored a workshop to examine some of these interactions and workshop results confirmed that there was a potentially acute problem in the Pacific Northwest involving seals, sea lions, and the salmon gill net fisheries in the Copper River Delta area of Alaska and the Columbia River in Washington and Oregon. On the basis of the workshop recommendations, the Commission provided funds to initiate a study of marine mammal/fishery interactions in the Copper River Delta/Prince William Sound area of Alaska, and this work was completed in 1978.

The Commission also provided funds to develop a plan to start investigating apparent conflicts in the Columbia River and adjacent waters, and a study was begun in 1980 by the Washington Department of Game, in cooperation with the Oregon Department of Fish and Wildlife and with funding provided by the National Marine Fisheries Service. Following a review of the first year of work, the Commission in 1981 transferred funds to the Service to support additional work by the Washington State researchers on the number, movement, and diets of harbor seals in the Columbia River and adjacent areas.

At about this time, the Commission, among others, became concerned that the several ongoing studies of marine mammal/fishery interactions might not be providing either comparable data or the types of information needed to resolve the problems. This concern resulted in a Commission decision to convene a follow-up workshop in October 1981 to review and coordinate ongoing efforts in the field and to determine whether the necessary information was being obtained.

Based on workshop recommendations and its own findings, the Commission concluded that ongoing research by the Washington Department of Game should be augmented to expedite identification and evaluation of possible means of mitigating marine mammal/fishery conflicts. In August 1982, the Commission

again transferred funds to the National Marine Fisheries Service, this time to support development of a research and studies plan for identifying the most effective methods for mitigating marine mammal/fishery conflicts in the Columbia River. The work is being done by researchers from the Washington Department of Game as part of its fourth year of work under the Columbia River Project. In February 1983, the Commission reviewed and provided comments on the draft of the third annual project report.

Interactions off California

Efforts to determine the nature and extent of marine mammal/fishery interactions in California coastal waters have been underway since 1979 as a cooperative project of the National Marine Fisheries Service and the California Department of Fish and Game. These investigations, reviewed during the previously discussed Commission-sponsored workshop on marine mammal/fishery interactions in 1981, were again examined in 1982 during a Commission review of the marine mammal research programs being conducted by the National Marine Fisheries Service, Southwest Fisheries Center.

At the 1982 program review, it was noted that: gill netting is a cheap, non-labor-intensive way of fishing which has attracted many immigrant as well as established fishermen; the amount of gill and trammel net fishing and the number of fishermen using entangling-type nets have increased dramatically in central and northern California since 1979; and incidental marine mammal take has increased accordingly. During a portion of 1982, gill netting was prohibited in Monterey Bay and this served to intensify gill netting pressures to the north in Marin, San Francisco, and San Mateo Counties. As a result, large numbers of harbor porpoise were killed in the nets, especially those set for halibut and white croaker. Elsewhere along the California coastline, pinnipeds, small cetaceans, and sea otters were being killed in gill and trammel nets as well.

The nature and extent of this incidental take and measures that might be used to reduce or avoid it were not and are not well documented. For this reason, the Commission transferred funds to the California Department of Fish and Game in 1982 for a study to better determine the effects of gill and trammel net fisheries on both target and non-target species and to make recommendations for mitigating adverse

effects and improving management of the fisheries. Because of State-imposed hiring restrictions, the Department was not able to use the Commission's funding until the second half of 1983 and thus work will be continued into 1984.

During 1983, the Commission continued to review and analyze available information on the extent and possible impact of the incidental take and participated in discussions with the California Department of Fish and Game, among others, on the progress being made. In addition, as is discussed in detail in Chapter II of this Report, the Commission funded several research projects related to the incidental take of marine mammals in the California gill and trammel net fisheries. These studies involved observations of gill and trammel net fisheries in and near Monterey Bay and Morro Bay as well as acoustic tagging and tracking of sea otters killed in the fisheries.

The Commission, in consultation with its Committee of Scientific Advisors, reviewed the existing information and, on 14 September 1983, wrote to the Fish and Wildlife Service commenting on efforts to protect the southern sea otter population and recommending, among other things, that steps be taken promptly to expedite assessment of sea otter mortality in gill and trammel nets and to identify action necessary to eliminate or significantly reduce such incidental taking. The Commission specifically recommended that the Service: undertake an in-depth review of the assessment/mitigation programs being conducted and planned by both the Service and the California Department of Fish and Game; consult with California Department of Fish and Game representatives and other knowledgeable persons to determine how ongoing and planned programs should be improved to better define the problem, develop possible mitigation measures, and evaluate these measures; explore, in cooperation with the Department, the potential effectiveness of prohibiting gill and trammel net fishing within the 20-fathom isobath; and provide such funding or other assistance as may be necessary to describe, design, and implement the required assessment/mitigation program.

On 19 December 1983, the Service responded to the Commission's letter, agreeing, among other things, that the need to expedite assessment of sea otter mortality is critical. The Service noted that it would be meeting with the California Department of Fish and Game to develop more comprehensive methods for assessing the problem and subsequently would cooperate with the Department on development of a

mitigation plan. The Service noted, however, that it believed that authority and responsibility for implementing mitigation actions rested with the California Department of Fish and Game.

On 10 November 1983, the Commission wrote to the National Marine Fisheries Service, calling attention to the possible impact of gill and trammel net fisheries on the harbor porpoise population off central and northern California. The Commission summarized available information and noted that gill netting had probably already had a significant adverse effect on the harbor porpoise population in the area and that it appeared highly unlikely that the population could continue to sustain the present level of fishery-induced mortality. As discussed in Chapter VI of this Report, the Commission recommended that the Service, among other things, immediately consult with the California Department of Fish and Game to cooperatively assist in the development and implementation of a strategy for remedying this serious situation.

The 1982 review of the Southwest Fisheries Center's marine mammal research program also indicated uncertainties concerning the possible effects of the squid fishery off Santa Catalina Island on pilot whale populations. The National Marine Fisheries Service subsequently provided funding to initiate a three-year study of the interactions between the squid fishery and pilot whales in the area. In 1983, the Commission and the Service jointly supported the project, which is discussed in Chapter II of this Report.

Interactions in the Southeastern Bering Sea

The Bering Sea is one of the world's richest fishing grounds and supports a diverse assemblage of marine mammals. The continued expansion of both domestic and foreign fisheries in the area since the mid-1960s has focused attention on interactions, particularly competition between fishermen and marine mammals for the same fish and shellfish resources. Thus, in 1980, the Commission initiated a cooperative effort with the North Pacific Fishery Management Council to develop an ecosystem approach to the management of marine mammals and fishery resources of the area. This cooperation included joint support of a review conducted by the Alaska Department of Fish and Game of available information on the distribution, movements, abundance, and food habits of marine mammals in the Bering Sea. Authors of the review recommended, among other things, that a workshop be convened to consider issues bearing on interactions among marine mammals and fisheries

in the area. The Commission concurred with this recommendation and, in 1982, provided funds to the North Pacific Fishery Management Council to help organize and convene the workshop. For these purposes, a steering committee was formed which met several times during 1982 and 1983. Commission representatives participated both in the steering committee meetings and in the workshop, held in Anchorage, Alaska, 18 to 21 October 1983.

The objectives of the workshop were to review existing knowledge of interactions in the Southeastern Bering Sea and to develop a five- to ten-year plan for carrying out the scientific research needed to provide the substantive basis for agencies to manage commercial fisheries in the area with adequate regard for marine mammals. Emphasis was placed on the biological interactions involving the effects of fishing and marine mammal predation on fish stocks, marine mammal populations, and yields to fisheries. The proceedings of the workshop are expected to be published by the Alaska Sea Grant Program in the spring of 1984. The Commission, in consultation with its Committee of Scientific Advisors, will carefully review the report and recommend that the National Marine Fisheries Service take such follow-up actions as may be necessary and appropriate.

Expanding fishing operations in the Shelikof Strait area of Alaska are also affecting marine mammals, particularly Steller sea lion populations. As noted in Chapter II, the Commission provided funds to the North Pacific Fishery Management Council in 1983 to help support a study to be undertaken by the Alaska Department of Fish and Game to detect possible effects.

Interactions off Hawaii

Available information concerning interactions between marine mammals and fisheries in Hawaii was reviewed during the Commission-sponsored workshop on marine mammal/fishery interactions held in December 1977. The review indicated that several species of porpoise occasionally take bait, damage or take caught fish, or otherwise interfere with longline, handline, and troll fisheries for tuna and other fish. Staff from the Honolulu Laboratory of the National Marine Fisheries Service subsequently conducted a number of surveys and experiments to better determine the nature and extent of the damage being done by the porpoise and steps that might be taken to prevent or reduce it.

During the Commission's meeting in Honolulu in February 1983, several fishermen indicated that the incidence of interactions had increased substantially in several areas and that some fishermen and fisheries were suffering substantial economic loss. As a result of these discussions, the Commission provided funds to compile and summarize existing data (see Chapter II) and, on 30 November 1983, convened a meeting of knowledgeable and interested parties to review the existing data and to identify steps that may be necessary and possible to better document and/or mitigate marine mammal/fishery interactions in Hawaii.

The meeting report, expected to be completed early in 1984, will be reviewed by the Commission in consultation with its Committee of Scientific Advisors to determine what follow-up actions are needed. It is anticipated that the report may serve as a basis for further discussions with fishermen in Hawaii on experimental approaches to mitigation.

Entanglement in Lost or Discarded Fishing Gear

The tendency of marine mammals to become entangled in net fragments, packing bands, and other debris lost or discarded at sea has been recognized for many years. The problem appears to be particularly serious for the North Pacific fur seal. During the past two years, data analyses have indicated that entanglement may be a significant cause of both fur seal mortality and the ongoing decline of the northern fur seal population. In addition, incidents of similar entanglement of other marine mammal species in the North Pacific Basin, notably the endangered Hawaiian monk seal, indicate that the problem is not limited to the North Pacific fur seal. Furthermore, data and information from others of the world's oceans show that the problem is, in fact, global.

Background -- For at least the past decade, the North Pacific Fur Seal Commission has been aware of an increasing number of seals becoming entangled with material lost or discarded by fishermen. In 1975, the Fur Seal Commission's Standing Scientific Committee repeated its previously stated concern about the entanglement problem and noted that, on the Pribilof Island of St. Paul, the incidence of entangled fur seals had increased nearly fourfold between 1967 and 1975. During the following years, the four nations party to the Fur Seal Convention -- Canada, Japan, the United States, and the Soviet Union -- attempted to check this growing problem

by distributing posters, brochures, and other educational material to the fishing industries involved in the North Pacific. They also tried, in some areas, to clear beaches of debris considered dangerous to fur seals and other marine life.

By 1982, however, it was apparent that these efforts had not diminished the rate of fur seal entanglement and that the impact of entanglement was more serious than had been realized. As described in the Commission's previous Annual Report, a data analysis carried out in preparation for the April 1982 meeting of the Fur Seal Commission indicated that entanglement of fur seals may be a far more significant mortality factor than had been previously believed and was possibly a primary cause of the ongoing decline in the North Pacific fur seal population. It was estimated at that time that the annual mortality rate due to entanglement might be more than five percent of the population as a whole.

The Marine Mammal Commission, gravely concerned by these estimates, participated in the National Marine Fisheries Service's preparations for the April 1982 meeting of the Fur Seal Commission and prepared a U.S. position paper on the entanglement issue. Throughout 1982 and 1983, the Commission worked with the Service, the Department of State, and others to encourage the Parties to the North Pacific Fur Seal Commission to take all possible steps to assess and eliminate the entanglement problem. These activities are described in detail in Chapter III of this Report.

The Entanglement Workshop -- In August 1982, at the request of the Commission, a review of several marine mammal programs being conducted by the National Marine Fisheries Service was held at the Southwest Fisheries Center. At that meeting, Service scientists reviewed documented reports of Hawaiian monk seal entanglement in fishing gear, and, on the basis of these and other observations, it was agreed that entanglement in lost or discarded fishing gear could be a cause of substantial monk seal mortality as well. The net entanglement problem also was raised in other contexts during the two-day program review, and participants concluded that it would be of value to promptly convene an entanglement workshop to address the issue, and the Service offered to proceed with planning such a workshop.

After further discussion, the Commission wrote to the Service's Southwest Regional Office on 22 September 1982 expressing its support of the approach being taken by the

Service and offering to contribute Commission funds to assist in organizing the workshop. By early in 1983, however, it was apparent that no progress was being realized. Therefore, planning and progress with respect to a net entanglement workshop were reviewed in detail at the February 1983 meeting of the Commission and its Committee of Scientific Advisors. At that time, the Commission also circulated draft terms of reference for a workshop designed to determine: the types, probable sources, and amounts of fishing gear that have been and are being lost, discarded, or otherwise accumulated each year in various areas; the species and numbers of marine mammals, birds, turtles, etc., apparently being caught and killed in such gear; steps that should be taken to prevent, reduce, and/or better document mortality from entanglement; and domestic and international authorities that might be of use in addressing the problem. Subsequent to its meeting in Honolulu, the Commission, in consultation with its Committee, continued to pursue the workshop idea with Service officials at Washington headquarters and elsewhere. On 13 April 1983, the Commission wrote to the Service and summarized points on which agreement had been reached during informal discussions.

In its 13 April letter, the Commission noted, among other things, that: because of the gravity of the entanglement situation, particularly with respect to the North Pacific fur seal, time was of the essence; a workshop should be held in August 1983 in Hawaii; the workshop should be international in character and participation should be sought from Japan, Taiwan, South Korea, Canada, and the Soviet Union; the Service should seek commitments for support of the workshop; the possibility of having the Hawaii Sea Grant Program run the workshop should be considered; and the Service should take steps to pull the meeting together as quickly as possible. In its letter, the Commission offered to provide funds to the Service to convene a steering group to immediately begin workshop planning.

The letter was accompanied by a detailed scope of work which noted, among other points, that the ultimate objective of the workshop should be to identify actions that could be taken to prevent further dumping and, to the extent possible, loss of materials in which fur seals and other marine mammals could become entangled as well as to clean up or reduce the amount of accumulated debris in areas inhabited by fur seals and other marine mammals.

By letter of 21 April 1983, the Service indicated that it shared the Commission's desire for prompt and effective action to deal with the serious and continuing decline of

the fur seal population. The Service also indicated that it planned to consult further with the Commission and to organize and convene a workshop in August 1983 to better assess the probable sources, extent, and effects of lost or discarded fishing gear, packing material, and other debris in the North Pacific and to identify ways in which entanglement of marine mammals and other marine species could be eliminated or reduced. The Service also indicated that it planned: to promulgate and enforce regulations for both domestic and foreign fishermen to prohibit the discard of net material and other debris; to direct U.S. observers on foreign vessels to notify captains of these prohibitions; and to explore the feasibility of establishing a bounty system and/or other arrangements to discourage the discard and encourage the recovery of such material.

The Service did not convene the workshop in August 1983. It did, however, hold a briefing on 27 September for representatives of Canada, Japan, the Republic of Korea, Taiwan, and the Soviet Union at which Service staff presented recent data on the extent of the fur seal loss due to entanglement and the Commission set forth the need for and terms of reference for an international workshop of technical and scientific experts to address the issues.

On 30 September, the Commission wrote the Service conveying its understanding of the results of the 27 September briefing. The Commission noted that those present appeared favorably disposed to the proposed terms of reference and that there appeared to be consensus among participating nations that the workshop was needed and should be a non-governmental, international meeting of scientific and technical experts. The Commission also noted that it would send its draft terms of reference for a workshop to the representatives of other governments that had attended the briefing and had requested the terms of reference of the Commission.

On 18 November, the Commission again wrote to the Service, stressing the extremely serious nature of the entanglement problem and repeating its offer to contribute funds for purposes of planning the workshop. Some among the numerous Commission recommendations were that: the Service promptly take certain steps to plan, organize, and convene an international workshop of experts to address the net entanglement problem; the National Oceanic and Atmospheric Administration's Office of General Counsel identify and evaluate all domestic and international authorities that might be used to prevent further dumping of gear and debris

and to facilitate recovery of materials already discarded; the Service request that the Department of State take necessary steps to gather similar information with respect to the domestic authorities of other involved countries; the Service undertake studies of ways to mark nets to show their provenance in the event of recovery; the Service immediately start identifying critical data gaps so as to develop such programs as may be needed to determine the types, quantity, size, and distribution of net fragments and other debris and the likely fate of these materials; and the Service assign a high-level administrator/scientist the responsibility for overseeing and coordinating all aspects of an organized, systematic attack on the net entanglement problem.

Subsequently, the Commission was advised that the Service would accept the \$4,000 offered it to convene a steering group to plan the net entanglement workshop, that the workshop was tentatively scheduled for October 1984, and that the Service hoped to hold the first meeting of the steering group in January 1984. The Commission subsequently transferred the funds to the Sea Grant Program Office at the University of Hawaii for a steering group meeting.

On 28 December 1983, the Commission received a response from the Service to its 18 November letter and recommendations. In its response, dated 23 December, the Service noted that: it would consider the Commission's suggestions; it concurred with the Commission that the task of greatest immediate importance was to convene a net entanglement workshop; the Honolulu Laboratory had agreed to assume planning responsibility; the Sea Grant Office of the University of Hawaii would be participating; and the Commission's offer of funds was accepted and these should be transferred to the Hawaii Sea Grant Office.

On 30 December, the Commission responded to the Service's 23 December letter, noting that the recommended actions in the Commission's 18 November letter were formal recommendations to the National Marine Fisheries Service made pursuant to Section 202(d) of the Marine Mammal Protection Act of 1972, as amended; that the Commission expected a formal response to each recommendation and, if recommendations were not to be adopted and followed, a detailed explanation was to be provided the Commission.

Conclusion -- Net entanglement is an issue of global consequence and its effects have been documented in many parts of the world's oceans. It is the Commission's hope that by first concentrating efforts in the North Pacific, an area in which there exist a number of serious problems, it may be possible not only to constructively address those problems, but also to provide a working example of a way to address the issue in other areas.

CHAPTER V

INCIDENTAL TAKE OF MARINE MAMMALS IN THE COURSE OF COMMERCIAL FISHING OPERATIONS

The Marine Mammal Protection Act directs the Secretaries of Commerce and the Interior, in consultation with the Commission, to develop regulations governing the incidental taking of marine mammals by persons subject to the jurisdiction of the United States and to develop effective international arrangements, through the Secretary of State, for the purpose of reducing the incidental taking of marine mammals to insignificant levels approaching a zero mortality and serious injury rate.

Although the incidental taking of marine mammals occurs in the course of several fisheries and involves several different species of marine mammals, the "tuna-porpoise" issue involving the incidental mortality and serious injury of porpoises entrapped in the purse seine nets used by commercial yellowfin tuna fishermen has, over the past years, been the subject of the most intense concern, attention, and controversy. Of more recent concern has been the incidental taking of Dall's porpoise in the course of the Japanese salmon gill net fishery in the North Pacific Ocean, a portion of which occurs within the United States' 200-mile Exclusive Economic Zone. The Commission's activities during 1983 relating to both of these issues are discussed below.

The Tuna-Porpoise Issue

A detailed discussion of the Commission's past activities and a historical summary of the efforts to resolve the problem are presented in the Commission's previous Annual Reports. During 1983, the Commission continued to devote attention to this issue and consulted with the National Marine Fisheries Service and others in a continuing effort to contribute to the resolution of the issue.

The 1983 Fishing Season

The National Marine Fisheries Service issued final regulations on 31 October 1980 establishing an annual quota of 20,500 animals for each of the years 1981 through 1985, and a general permit to take porpoise incidentally in compliance with the final regulations and quotas was issued to the American Tunabot Association on 1 December 1980. Although analyses have not yet been completed and a final figure is not yet available, the data available at the end of 1983 indicate that the total estimated porpoise mortality and serious injury for the year was 8,258. Of these, 7,440 were taken from species or stocks for which quotas were specifically allocated, 20 were from other species or stocks for which individual quotas had not been set, 103 were unidentified animals which have yet to be assigned to species or stock categories, and 695 were eastern spinners which have been determined to be depleted and of which only limited accidental taking is permitted. For reference, figures for the estimated porpoise mortality and serious injury associated with U.S. commercial yellowfin tuna fishing vessels since passage of the Act are set forth below.

<u>Year</u>	<u>Estimated Kill and Serious Injury</u>
1972	368,600
1973	206,697
1974	147,437
1975	166,645
1976	108,740
1977	25,452
1978	19,366
1979	17,938
1980	15,305
1981	18,780
1982	22,736
1983	8,258

The level of mortality and serious injury during 1983 was well below the aggregate quota, and the rate of mortality and serious injury was also reduced (3.02 animals per porpoise set and 0.31 per ton of yellowfin tuna caught on porpoise in 1983 compared to 4.83 animals per set and 0.40 per ton in 1982 and 3.28 and 0.34, respectively, in 1981).

The total estimated mortality level was relatively low due in part to a shift in fishing effort by most of the U.S. fishing fleet from the eastern tropical Pacific to the western Pacific where tuna can be caught without setting on porpoise. While this change in fishing area results in reduced pressure on eastern tropical Pacific porpoise populations by U.S. vessels (only 29 trips by U.S. vessels in 1983 compared to 54 each in 1981 and 1982), it is not an entirely salutary development. The number of foreign flag purse seiners fishing in the eastern tropical Pacific and the associated pressure on porpoise populations has increased dramatically in recent years and it is estimated that the rate and level of kill by such foreign vessels exceeds that by U.S. vessels. These developments warrant increased attention and efforts during 1984 to better determine and reduce the level of foreign kill.

Litigation

Two major lawsuits relating to the tuna-porpoise regulations were pending during 1983.

On 12 December 1980, representatives of the U.S. tuna fishing fleet filed a lawsuit in the U.S. District Court for the Southern District of California (American Tunaboot Association v. Baldrige). The plaintiffs in the case alleged that the decision of the Administrator of the National Oceanic and Atmospheric Administration in October 1980 establishing annual quotas and the tuna-porpoise regulations were illegal because, among other things, the recommendations of the administrative law judge concerning mean school size, density, and range of the porpoise stocks were not adopted and the determination that the coastal spotted dolphin stock is depleted was improper. The plaintiffs alleged that because the regulations and quotas were not based upon the best scientific evidence available, they were unlawful.

On 10 March 1982, the District Court ruled that the Administrator should have accepted the administrative law judge's determinations and that the Administrator's rejection of those determinations was unsupported by substantial evidence and unlawful. The District Court granted the plaintiffs' motion for summary judgment and directed the Government to submit recalculations concerning the density and range of porpoise schools and the current status of the affected porpoise stocks based upon the recalculated density, range, and mean school size values. On 21 May 1982, the District Court denied the Government's

motion for reconsideration and on 25 June 1982, the Government appealed the District Court's decision to the U.S. Court of Appeals for the Ninth Circuit. On 8 June 1983, the appellate panel issued an order to withdraw the case from submission, pending a decision in the Balelo case discussed below.

The second lawsuit (Balelo v. Baldrige), filed 1 October 1980, was also brought by representatives of the U.S. fishing fleet in the U.S. District Court for the Southern District of California. This lawsuit challenged the statutory and Constitutional authority for the Government's use of information gathered by observers on board tuna vessels for enforcement of the quotas and other provisions of the regulations. On 27 July 1981, the District Court ruled that, in the absence of statutory authority, such use of observer-gathered information violated the Marine Mammal Protection Act and the Fourth Amendment of the U.S. Constitution. The court enjoined the Government from using such information for civil or criminal penalty proceedings, forfeiture actions, permit or certificate sanctions, or any purpose except scientific research. On 22 September 1981, the Government appealed the District Court's decision to the U.S. Court of Appeals for the Ninth Circuit.

On 5 January 1983, a three-judge panel of the Court of Appeals ruled that the regulation requiring tuna vessels to accept observers was invalid for all purposes -- scientific data gathering as well as enforcement of quotas and other regulations. The court affirmed the District Court's July 1981 holding with respect to placement of observers for enforcement, reversed the District Court's holding that such placement for scientific purposes was permissible, and remanded the case to the District Court to enter an injunction consistent with the opinion banning placement of observers without consent for any purposes. The court reasoned that such placement of observers without consent was a search without a warrant, raised issues of "questionable constitutionality," and that there was no express Congressional authorization for it in the Act which might overcome such constitutional problems. On 30 June 1983, the full U.S. Court of Appeals for the Ninth Circuit granted the Government's motion for a rehearing en banc (by the full court) and oral arguments were presented to the court on 15 September 1983. On appeal, the Ninth Circuit consolidated Balelo with a companion case (United States v. \$50,178.50) (the "Willa G." case), in which the Service had sought forfeiture of that

portion of a vessel's catch of tuna obtained from unlawful sets on prohibited stocks or species. No action had been taken by the full court by the end of 1983.

Throughout 1983, the Commission joined with representatives of the National Marine Fisheries Service, the tuna industry, environmental organizations, and others in an attempt to reach agreement on a voluntary observer program which would, with the consent of the tuna fishermen, provide for placement of observers to gather data for scientific purposes and for enforcement on a vessel-by-vessel basis of quotas, prohibition against setting on depleted species, and certain other porpoise protection regulations. These efforts were unsuccessful. Observers were placed aboard U.S. fishing vessels during 1983 pursuant to a voluntary Inter-American Tropical Tuna Commission program to monitor kill levels, but vessel-by-vessel information on porpoise kill and compliance with the regulations is not available from that program.

Research Planning and Coordination

As noted in the Annual Report for Calendar Year 1982, Commission representatives met that year with the National Marine Fisheries Service to review plans for scientific activities preparatory to establishment of tuna-porpoise regulations to replace present regulations which will expire in 1985. While no major population survey is to be undertaken to update the assessment of the status of the porpoise stocks impacted by the yellowfin tuna purse seine fishery, the Service has carried out several aerial experiments, as well as a number of shipboard surveys, to resolve problems with earlier analyses. The latest of those made in 1983 was designed to determine if porpoise respond to research vessels before being detected by observers on the vessels. The Commission contributed both to the design of the experiment and to the analysis of its results.

The new data from specially designed experiments and from shipboard research cruises permits a reanalysis of the earlier data to better evaluate the status of the porpoise stocks. The analyses, which are being carried out by the National Marine Fisheries Service, are being reviewed by four panels, each meeting on one or more occasions. The panels include experts from the academic and industrial sectors as well as representatives of the Service. The Marine Mammal Commission is participating fully in the work of these panels and will

continue to advise the Service in developing the best scientific basis for the regulation of the yellowfin tuna fishery in the period following 1985. However, while the analyses are being carefully prepared, it is important to note the following points: the completed analyses will provide estimates of porpoise populations as they were in 1979 and provide little basis for determining trends since that time; more than fifty percent of the tuna landed in the eastern tropical Pacific is being taken by foreign flag vessels, with the greatest percentage of these coming from Mexico, a country which does not participate in the Inter-American Tropical Tuna Commission observer program. Thus, as was the case last year, there is an inadequate basis for reliably estimating either the numbers or species composition of the porpoise being killed by foreign-flag purse seiners; and even if the kill has been reduced, there continues to be extensive pursuit, encirclement, and capture of porpoise in purse seines, and research aimed at alternative fishing techniques which would obviate the need to use porpoise has been essentially terminated even though the effects of pursuit, encirclement, and capture on the animals and on the involved populations remain totally unknown.

The Commission will continue to seek ways in 1984 to resolve the several critical problems outlined above.

The Dall's Porpoise Issue

Dall's porpoise (Phocoenoides dalli) become entangled and die in the gill nets used by Japanese salmon fishermen in the North Pacific Ocean. As a result of the renegotiation of the International Convention for the High Seas Fisheries of the North Pacific and amendments to the U.S. North Pacific Fisheries Act implementing that Convention, the Japanese are permitted to fish for salmon both within and outside the U.S. 200-mile Exclusive Economic Zone, west of 170° east longitude. This fishing has been subject, among other things, to the provisions of a Memorandum of Understanding between the United States and Japan concerning coordinated research efforts and, beginning 10 June 1981, to compliance with the general permit requirement and other requirements of the Marine Mammal Protection Act with respect to incidental taking of Dall's porpoise and other marine mammals within the 200-mile zone.

As discussed in the Commission's previous Annual Reports, on 15 May 1981, the National Marine Fisheries Service published final regulations and issued a permit to the Federation of Japan Salmon Fisheries Cooperative Association allowing fishermen to incidentally take up to 5,500 Dall's porpoise, 450 northern fur seals, and 25 northern sea lions each year during the 1981 through 1983 fishing seasons. The permit required the Japanese fishermen to accept U.S. Government observers onboard their fishing vessels and to assist as requested in meeting the objectives of the research program agreed to by the Governments of the United States and Japan. The duration of that permit was extended through the 1986 fishing season by the Fisheries Amendments of 1982 which also require, among other things, that all Japanese fishing vessels adopt over the next three years new fishing gear and techniques to reduce or eliminate the incidental taking of porpoise and that the National Marine Fisheries Service develop detailed annual action plans for the 1984 through 1986 fishing seasons relating to monitoring, research and development, and other necessary actions.

Preliminary analyses of data obtained by U.S. observers aboard Japanese salmon fishing vessels indicate that 2,906 Dall's porpoise were incidentally taken within the U.S. Exclusive Economic Zone and a total of 4,280 were taken within and outside the zone by the Japanese mothership fishery during the 1983 season. The observed mean kill per set was 0.47 in 1983. The 2,906 figure is well below both the 5,500 quota and the comparable figure of 4,187 animals estimated to have been taken within the zone during 1982.

The Commission will consult with the National Marine Fisheries Service and others during 1984 with special reference to the Service's preliminary action plan for the 1984 fishing season which is to be available to the Commission and others for review and comment on 1 January 1984.

CHAPTER VI

SPECIES OF SPECIAL CONCERN

The Marine Mammal Commission, in consultation with its Committee of Scientific Advisors on Marine Mammals, reviews the status of marine mammal populations and makes recommendations on necessary research and management actions as well as on designations with respect to the status of the species or population under the Marine Mammal Protection Act and the Endangered Species Act. During 1983, the Commission continued to concentrate its efforts on several species of marine mammals designated as "endangered" or "threatened," including the West Indian manatee, the Hawaiian monk seal, the California sea otter, the bowhead whale, the right whale, and the humpback whale. Attention was also focused on bottlenose dolphin populations in the southeastern United States, the Gulf of California harbor porpoise, the Guadalupe fur seal, and the harbor porpoise population off the coast of California. Detailed discussion of the Commission's activities regarding these animals follows.

West Indian Manatee (*Trichechus manatus*)

The West Indian manatee is one of the most endangered species of marine mammals found in the coastal waters of the United States. The largest concentrations are found in Florida where the population generally has been estimated to be somewhat more than 1,000 animals. Over the past few years, the continued high level of mortality, including a record number of reported deaths in 1982, and continued destruction and degradation of manatee habitat have raised doubts as to whether the population can long survive. However, increasing efforts to identify and protect essential habitat and a considerable reduction in manatee mortality in 1983 are causes for renewed hope.

Based on recovered carcasses and animals known to have died but which were not recovered, manatee mortalities in U.S. waters since 1977 have been as follows:

<u>Year</u>	<u>From Florida</u>	<u>Outside Florida</u>	<u>Total*</u>
1977	113	1	114
1978	85	0	85
1979	77	1	78
1980	63	4	67
1981	113	3	116
1982	117	6	123
1983	80	0	80

The high mortalities in 1977, 1981, and 1982 were largely related to unusual phenomena -- extended periods of cold weather in 1977 and 1981 and an occurrence of red tide in 1982.

As indicated in the previous Annual Report, despite the serious problems confronting the Florida population of manatees, the Commission has been encouraged by the development of strong, cooperative efforts among the responsible Federal and state agencies and private groups to increase protection of the species. Of particular note have been the recent efforts to address manatee mortality and injury resulting from collisions with boats. The Florida Department of Natural Resources and the Fish and Wildlife Service have cooperated to establish slow speed zones for boats in important manatee habitats; the Corps of Engineers has provided funds and assistance to help post signs to alert boaters to the presence of manatees; and the Florida Department of Natural Resources, the Florida Power and Light Company, and the Florida Audubon Society have cooperated on extensive public information and education programs directed in large part at the boating public. Data from the Fish and Wildlife Service manatee salvage program indicate that boat collisions have been the major cause of human-related manatee mortality, and losses attributed to this source have been 21 animals in 1978, 24 animals in 1979, 16 animals in 1980, 24 animals in 1981, and 21 animals in 1982. During 1983, 14 manatee

* Total manatee mortality levels given in past Annual Reports have reflected only the number of West Indian manatee carcasses recovered. Data provided here differ slightly since both recovered and confirmed but unrecovered carcasses are included.

deaths were attributable to boat collisions. Although the reasons for the 1983 reduction cannot be identified with certainty, it is possible that intensified enforcement and public education efforts have been an important factor.

A significant contribution to manatee protection in 1983 was the decision by the U.S. Coast Guard not to relocate its Lake Worth search-and-rescue station at 59th Street in West Palm Beach, Florida. As discussed in the 1982 Annual Report, the proposed site is immediately adjacent to the outfall of the Riviera Beach powerplant, an area used extensively by manatees as a warmwater refuge in winter. During discussions with the Coast Guard in 1982, the Commission, the Fish and Wildlife Service, and others pointed out that collisions between manatees and Coast Guard search and rescue craft using the site would pose a serious threat to the species' well-being. The Coast Guard, having been made fully aware of the potentially serious results of relocating at 59th Street, once again demonstrated its concerns for manatee conservation when it announced, early in 1983, that it would no longer consider use of that site and would instead explore other options.

Also, in July 1983, the Florida Department of Natural Resources moved to expand its role in manatee protection by establishing a Manatee Recovery Activities Coordinator within the Department. This action obviated the need for continued Federal support of the coordinator position which had been funded initially by the Commission and later by the Fish and Wildlife Service. At the end of 1983, the State was contemplating a number of actions which could lead to the establishment of a long-term funding source for increased Departmental support of manatee research and management activities.

As noted above and in previous Annual Reports, an important and valuable participant in cooperative efforts to protect manatees has been the Florida Power and Light Company. First drawn into manatee conservation because of the species' attraction to powerplant warmwater outfalls during cold weather, Florida Power and Light Company has been instrumental in initiating or otherwise encouraging a number of projects aimed at protecting and enhancing recovery of the Florida manatee population. These have included development of radio tagging techniques, behavioral and ecological studies, development of a photo-identification catalog for manatees, aerial surveys, and a public information and education program which is widely viewed as being extraordinarily effective and a model for others to emulate.

In 1983, these efforts on behalf of manatees as well as contributions in other areas were officially recognized by the Secretary of the Interior, who presented a special citation for conservation service to Florida Power and Light Company. The Marine Mammal Commission joined with the Secretary of the Interior and others in recognizing and applauding the major contributions that continue to be made by the Company.

Despite the progress being made to address sources of human-caused injury and mortality, other serious problems must also be faced. A major one is the increasing loss of undisturbed manatee habitat as a result of coastal development. Although habitat protection is identified as a number one priority need in the West Indian Manatee Recovery Plan, progress in this area has been slow.

One encouraging step in 1983 involved acquisition of areas including and immediately adjacent to essential manatee habitat in northwest Florida. As was discussed in the previous Annual Report, in 1982, the Nature Conservancy raised more than \$400,000 to purchase 14 islands in the King's Bay area of the Crystal River. In 1983, the Nature Conservancy sold the islands at cost to the Fish and Wildlife Service for incorporation into its National Wildlife Refuge System and then announced plans to reinvest the more than \$400,000 for acquisition of additional areas of important manatee habitat in the lower Suwannee River area.

Other areas may merit similar protection and in 1982, the Commission's Committee of Scientific Advisors' Manatee Working Group started a study to identify and assess the protection needs of such areas. The Group's preliminary findings identify several undeveloped areas in northwest Florida meriting additional or special protection. The final report is expected to be completed in 1984.

As described in previous Annual Reports, in 1980, the Commission provided funding to assist the Fish and Wildlife Service in developing a plan to identify and coordinate research and management priorities for the relatively discrete manatee subpopulation in the Crystal River area and to serve as a model for developing similar area-specific plans for other manatee subpopulations. In 1983, the Commission, in consultation with its Committee of Scientific Advisors, carefully reviewed and commented on drafts of various parts of the research and management plan, the final draft of which is expected to be submitted to the Fish and Wildlife Service for approval in 1984. The Commission will continue to assist with the development and implementation of this and other needed plans.

Hawaiian Monk Seal (Monachus schauinslandi)

The Hawaiian monk seal, which inhabits a limited area around the Leeward Hawaiian Islands, is in serious danger of extinction. Even so, it appears to be the only member of the genus Monachus that has a reasonable possibility of surviving into the next century. Of its two congeners, the Caribbean species (M. tropicalis) appears to be extinct and the Mediterranean species (M. monachus) is declining rapidly. Without a sustained and vigorous effort by the responsible State and Federal agencies, as well as public interest and industry groups, the Hawaiian monk seal may soon share this fate.

Protection and conservation of the Hawaiian monk seal is the responsibility of the National Marine Fisheries Service under provisions of the Marine Mammal Protection Act and the Endangered Species Act. Because the species' range includes the Hawaiian Islands National Wildlife Refuge, the Fish and Wildlife Service shares responsibility for protecting the monk seal and its habitat.

The Commission has worked for several years to focus attention on the serious problems facing the Hawaiian monk seal and Congress has shown that it shares these concerns. In Fiscal Year 1981, the Commission received a special \$100,000 appropriation to aid in development of an effective research and management program and, during that year, the Commission worked with the National Marine Fisheries Service to begin development of a monk seal recovery plan. The following year, Congress directed the Service to invest \$400,000 in monk seal work and the Commission consulted with the Service to determine the most appropriate use of these funds.

By mid-1982, it was apparent that this infusion of money was having a beneficial effect on the direction and progress of monk seal research and management, but that many problems remained. Working with the Service, the Commission described needed research tasks in order of priority. Subsequently, the Service was directed by Congress to budget \$150,000 for monk seal work in Fiscal Year 1983. Further Congressional action provided the Commission with an additional \$150,000 to support monk seal recovery activities, thus bringing the total Federal investment for Fiscal Year 1983 to \$300,000.

Throughout 1983, the Commission and the Service consulted on specific research tasks to be carried out. The 24-26 February meeting of the Commission and its Committee of

Scientific Advisors in Honolulu provided an opportunity for a detailed review of all aspects of the Service's monk seal program.

Following the review, the Commission prepared project descriptions and, on 13 April, transferred \$150,000 to the Service to help support the agreed-upon research and management tasks. These included: 1) completion of data analyses and reports from 1982 studies; 2) reassessment of available population data; 3) continuation of the pup rearing program and related studies at Kure Atoll; 4) assessment and mitigation of possible mortality due to entanglement in lost or discarded fishing gear; 5) completion of initial depth-of-dive and activity pattern studies at Lisianski Island; 6) population assessment and weaned pup tagging at Pearl and Hermes Reef, Lisianski Island, and Laysan Island; 7) continuation of surveys, behavioral observations, and beach counts of monk seals at French Frigate Shoals; 8) review and expansion of existing information, education, and enforcement programs; and 9) the convening of a meeting of the Hawaiian Monk Seal Recovery Team.

In a 15 June 1983 letter to the Service, the Commission noted that it was encouraged by the progress that had been made, stressed the importance of vigorous and continued support of a meaningful program to protect and encourage the recovery of the Hawaiian monk seal, and concluded that this would require a minimum annual base funding of \$300,000 per year for Fiscal Years 1984, 1985, and 1986. The Commission recommended that the National Marine Fisheries Service take the necessary steps to provide for such base funding for at least the next three years.

The Service responded to the Commission's recommendation by letter of 8 July. It noted that its research budget was subject to intense demands and pressures but assured the Commission that the monk seal program would get fair consideration. The Senate and House of Representatives, continuing their strong support of monk seal research and management efforts, increased the Service's Fiscal Year 1984 appropriation for monk seal work to \$300,000. The Commission will consult with the Service during 1984 on the most appropriate and effective use of these funds.

The importance of a recovery plan for the Hawaiian monk seal has been well recognized, and the Commission has worked closely with the Service on this effort for several years. In 1982, the Commission provided detailed comments on a draft recovery plan and in December of that year, received

an "Agency Review Draft" for review and comment. The Commission, in consultation with its Committee of Scientific Advisors, reviewed the draft and, on 14 February 1983, forwarded extensive comments and recommendations to the Service.

In the Commission's view, the draft plan provided a comprehensive summary of available information on the status of the Hawaiian monk seal, possible causes of the observed decline in numbers, and steps that have been taken to protect and encourage the species' recovery. The plan also provided a comprehensive outline of research and management actions that appear necessary to (a) better identify and mitigate both naturally occurring and human-caused factors that may be contributing to decreased survival and productivity of the species and (b) determine and monitor vital parameters of the populations and habitats critical to its survival.

The Commission concluded that the draft plan, with exceptions, constituted a fully adequate "strategic plan" to be used as a framework for developing an "operational work plan" which the Commission had previously recommended be done. The Commission thus recommended that the Agency Review Draft be expanded to provide clearer indications of the relative importance of the various tasks identified in the draft and the resources which would be required to fully implement the Recovery Plan. The Commission further recommended that work on an operational work plan be initiated promptly and that the Recovery Plan be put into final form and adopted as soon as possible. The Recovery Plan was finalized and approved by the Service on 1 April 1983. By the end of 1983, the Service had not yet developed an operational work plan or implementation plan.

At the time the Hawaiian Monk Seal Recovery Plan was being drafted, entanglement in lost or discarded fishing gear was not identified as a serious problem. The potential significance of entanglement on the species was recognized in 1983 and, as noted in Chapter IV of this Report, steps are being taken to plan and convene an international workshop to determine what needs to be done to better define and resolve the problem in terms of the Hawaiian monk seal and other species.

The California Sea Otter Population (*Enhydra lutris*)

Because of its small size and limited distribution, the remnant sea otter population in California is vulnerable to oil spills or other catastrophic events and, for this reason, was designated "threatened" under the Endangered Species Act in January 1977. The most logical way of reducing the severity of the impact of such threats to the population is by establishing one or more sea otter colonies outside the population's present range. While such an action could adversely affect commercial and recreational fisheries for abalone, clams, and other invertebrate species eaten by sea otters, it could also reduce populations of sea urchins and other herbivores which sea otters eat, and thus enhance the growth of kelp, a product of commercial significance which also provides habitat for certain species of finfish of recreational and commercial importance.

To facilitate protection and recovery of the California sea otter population, while minimizing possible adverse effects on commercial and recreational fisheries, the Commission, in December 1980, recommended that the Fish and Wildlife Service adopt and implement a management strategy recognizing the ultimate need for "zonal" management of sea otters and the need to establish one or more sea otter colonies at a site or sites not likely to be affected by an oil spill in or near the population's present range. The Fish and Wildlife Service concurred with the Commission's recommendation and incorporated the zonal management concept into the Southern Sea Otter Recovery Plan, which it adopted in February 1982.

Past Commission efforts to facilitate development and implementation of an effective sea otter recovery plan are described in previous Annual Reports. The Commission's activities in this regard in 1983 are summarized below.

Five-Year Status Review

The Endangered Species Act, as amended, requires that the Fish and Wildlife Service review the status of all species designated either "threatened" or "endangered" at least once every five years. In partial fulfillment of this responsibility, the Service, as noted in the Commission's previous Annual Report, published a Federal Register notice on 27 September 1982 requesting information on the status of the southern sea otter population and a number of other listed species. In addition, the Service and the California Department of Fish and Game jointly conducted a population count in November 1982.

During 1983, the Commission, in consultation with its Committee of Scientific Advisors, compiled and reviewed available information concerning the distribution, size, and productivity of the southern sea otter population and the nature and extent of possible threats from offshore oil and gas development, fisheries, and other human activities. The results of the review were conveyed to the Fish and Wildlife Service by letter of 15 December 1983. In the letter, the Commission noted that: the California sea otter population apparently has not increased in more than a decade; the range expansion, which was about five percent per year through the 1960s, appears to have stopped; the best available estimates indicate a present population of 1,200 to 1,500 independent animals producing 120 to 220 pups each year; there was a substantial decrease in the number of pups counted in the spring of 1983 compared to the spring of 1982, possibly as a result of the severe coastal storms in the winter and early spring of 1983; tanker traffic past the sea otter range has increased, as was anticipated in 1977, and presumably will continue to increase; it seems likely that efforts to explore and develop offshore oil and gas deposits in and near the sea otter's range will increase as well; a new threat, the incidental taking of sea otters in coastal gill net and trammel net fisheries, has been identified since the California sea otter population was designated "threatened" in 1977; because of the lack of population expansion, recently recognized impacts of incidental take, and the continued threat of oil spills from tanker accidents and offshore oil and gas development, there can be no question that the population should not be removed from the Endangered Species List; and, if the Service is unable to eliminate or substantially reduce the incidental kill, it should seriously consider changing the status from "threatened" to "endangered."

Because of the incidental kill problem and the threats posed by projected increases in offshore oil and gas activity, the Commission further recommended that the status of the population be re-examined in late 1984.

Incidental Take

The incidental take of sea otters was insignificant or unrecognized when the California sea otter population was designated "threatened" in 1977. The existence and possible significance of the problem was documented by the California Department of Fish and Game and others in 1982. As noted in

the previous Annual Report, the Commission provided \$10,000 to the California Department of Fish and Game in 1982 to augment ongoing studies of the problem and to assist in determining how programs being conducted, supported, or planned by other organizations could usefully expedite acquisition of needed data.

A hiring freeze within the State Government and other factors prevented development of the comprehensive program needed to clearly define the problem and possible solutions. Therefore, in 1983, the Commission, as described in Chapter II, provided funds to continue and expand observations of gill and trammel net fisheries in and near Morro Bay and Monterey Bay. In addition, following the program review described below, the Commission recommended that the Fish and Wildlife Service: undertake an in-depth review of the assessment/mitigation programs being conducted and planned by both the California Department of Fish and Game and the Fish and Wildlife Service; consult with California Department of Fish and Game representatives and other knowledgeable persons to determine how ongoing and planned programs should be improved to better define the problem and to develop and evaluate possible mitigation measures; assess the potential effectiveness of prohibiting gill and trammel net fishing in waters less than 20 fathoms deep; and provide such funding or other assistance as may be necessary to describe, design, and implement the required assessment/mitigation program.

General Program Review

On 23 August 1983, the Marine Mammal Commission, in consultation with its Committee of Scientific Advisors, convened a meeting of representatives of the Fish and Wildlife Service, the California Department of Fish and Game, the Minerals Management Service, the fishing and oil industries, and public interest groups to review programs being conducted or planned to facilitate implementation of the Southern Sea Otter Recovery Plan. As a result of the review, the Commission identified the following actions as necessary for the Fish and Wildlife Service, in consultation with other involved groups, to undertake immediately: 1) expedite assessment and reduction of sea otter mortality in gill and trammel nets; 2) determine the optimal design and establish agreed-upon schedules and procedures for periodic population surveys; 3) complete the Sea Otter Mapping Project described in the Commission's previous Annual Report; 4) select a translocation site or sites and develop a proposed translocation plan or plans that can be subjected to legal,

environmental, and economic evaluation and assessment; 5) develop and begin implementing an agreed-upon plan for assessing alternative methods for protecting and containing sea otters in designated zones; 6) facilitate the compilation, evaluation, and publication of existing survey, tagging, and mortality data; and 7) update the Southern Sea Otter Recovery Plan and initiate development of a comprehensive work plan.

By letter of 14 September 1983, the Commission advised the Fish and Wildlife Service as to the steps necessary to accomplish the aforementioned tasks. The Commission also noted that the identified tasks could only be accomplished promptly and effectively if an appropriately qualified person could be added to the Service's staff to devote full time to program planning, coordination, and administration. In order to make it possible for the Service to hire such a person, the Commission offered to transfer \$40,000 to the Service to support the first years' work of a Sea Otter Recovery Activities Coordinator.

The Service responded to the Commission's recommendations by letter dated 19 December 1983. The letter indicated that the Service agreed in principle with all of the points raised in the Commission's 14 September letter. It responded, in general terms, to each of the eight principal points raised in the Commission's letter, and indicated that a more specific response would be forthcoming at a later date. Among other things, the Service indicated that it agreed with the need for a full-time Sea Otter Recovery Activities Coordinator and said that it would take appropriate steps to fill the position.

Other Activities

Discussions during the Sea Otter Program Review in August 1983 indicated that the California Sea Otter Game Refuge, located off the coast of Monterey and San Luis Obispo Counties, was not shown on current marine charts for the area although it is shown on aeronautical charts. This omission could impede the effective enforcement of regulations within the Refuge, particularly those prohibiting the discharge of firearms or bows and the trapping of birds and animals. Therefore, the Commission advised the National Oceanic and Atmospheric Administration's National Ocean Service, the agency responsible for navigation charts, about this omission. The Service indicated its willingness to further consult with the Commission and the California Department of Fish and

Game so as to properly incorporate the Refuge on all future charts. Such consultations have taken place, and the California Department of Fish and Game has provided the Service the necessary information. Corrected navigation charts for the areas in question, to be reissued in 1984 and 1985, will include information on the California Sea Otter Game Refuge boundaries as well as on the applicable regulations therein.

Bowhead Whale (*Balaena mysticetus*)

Over-exploitation by commercial whalers in the 19th and early 20th centuries reduced the population size of bowhead whales to extremely low levels throughout its range. Commercial exploitation was prohibited more than 40 years ago, and the species is listed both as "endangered" under the Endangered Species Act and "depleted" under the Marine Mammal Protection Act.

Although commercial exploitation of the Bering Sea population of bowheads did not begin until the mid-19th century, the species has been hunted for subsistence purposes by Eskimos for centuries. During the mid-1970s, reported increases in the number of bowhead whales landed as well as those struck but lost by Alaskan Eskimos led to increasing concern about the possible adverse impact of unregulated Eskimo hunting on the endangered bowhead population. This concern led to a decision by the International Whaling Commission (IWC) in June 1977 to ban the taking of bowhead whales for subsistence purposes by all its member nations' people, including Alaskan Eskimos. Subsequently, in December 1977 and thereafter, the IWC modified the total ban in recognition of the subsistence and cultural dependence of Alaskan Eskimos on bowheads. Limited quotas were established for subsistence hunting during 1978, 1979, and 1980, and at its July 1980 meeting, the IWC adopted a "block quota" for the years 1981 through 1983 of 45 bowhead whales landed or 65 struck, whichever came first, provided that not more than 17 whales were landed during any one year.

In addition to the pressures on bowhead whale populations resulting from continued subsistence hunting, activities related to offshore oil and gas development in waters off Alaska and Canada pose a potential threat to this species' survival. Recognizing this, the Bureau of Land Management (now the Minerals Management Service) initiated research in the late 1970s on bowheads and other marine mammal species that could be adversely affected by OCS activities. In 1978, the

Marine Mammal Commission convened the first of a series of meetings to coordinate bowhead research among the Minerals Management Service, the National Marine Fisheries Service, and other entities. Detailed discussions of these and other Commission activities as well as a historical summary of the bowhead whale issue are presented in past Annual Reports.

Eskimo Whaling During 1983

In order to provide Eskimos with substantial opportunity and responsibility for regulation, monitoring, and enforcement of the bowhead whale hunt, the National Oceanic and Atmospheric Administration, on behalf of the Government, and the Alaska Eskimo Whaling Commission signed a Cooperative Agreement in 1981 recognizing each party's responsibility for whaling management. Under the IWC's three-year bowhead whale quota adopted in 1981, a total of 18 strikes remained available to Eskimo whalers in 1983. Pursuant to the terms of the Cooperative Agreement, the Alaska Eskimo Whaling Commission allocated these strikes among the nine whaling villages and monitored the hunt for compliance with regulations. At the end of the 1983 spring hunt, eight bowhead whales had been landed and another eight had been struck and lost for a total of 16 strikes. During the fall hunt, one whale was landed and an additional whale was struck and lost for a total of nine whales landed and 18 struck. At that point, the Eskimos stopped whaling and thus limited the 1983 total of 18 strikes to the level established by the IWC. The total of nine whales landed also met the IWC specification that no more than 17 bowhead whales be landed during any one year. For the 1981, 1982, and 1983 hunts, Eskimo whalers struck 65 whales and landed 34. This was within the IWC block quota of 65 strikes and 45 landings, whichever came first, for the period.

Consideration by the International Whaling Commission During 1983

At its annual meeting in July 1983, the IWC set a 1984 bowhead whale catch limit consistent with the aboriginal subsistence whaling management scheme adopted at its 1982 meeting. The U.S. Delegation to the IWC meeting presented a detailed quantitative analysis of the U.S. Eskimo bowhead needs for 1984, and proposed a quota of 35 strikes. The IWC workshop group charged with advising the IWC on aboriginal take was not able, however, to establish quantitative needs for any subsistence whaling operation including the U.S. bowhead harvest. Furthermore, the IWC Scientific Committee, unable to agree on a net recruitment estimate,

recommended that, if the Commission decided to set a 1984 catch limit, it should be less than 22 strikes.

After lengthy discussion, the IWC adopted a block quota for 1984 and 1985 of 43 strikes, with no more than 27 to be made in any one year. Under the Cooperative Agreement mentioned above, the Alaska Eskimo Whaling Commission will allocate these strikes among the whaling villages. The quota is to be reviewed by the IWC at its 1984 meeting.

Research Coordination and Planning

When the IWC withdrew its total ban on the taking of bowhead whales for subsistence purposes in December 1977, it did so in part because of the U.S. Commissioner's pledge that the United States would undertake a comprehensive research program on the issue. Responsibility for planning and implementing the program was assigned to the National Marine Fisheries Service's National Marine Mammal Laboratory. The Commission's role in developing the program is described in its Annual Reports on Calendar Years 1977 and 1978.

In 1978, the Bureau of Land Management (now the Minerals Management Service) initiated studies to determine how bowhead whales might be impacted by oil and gas development in the Beaufort Sea. Several elements of the program appeared to duplicate the research already being conducted or planned by the National Marine Fisheries Service. Therefore, as described in previous Annual Reports, the Commission sponsored a series of meetings which resulted in coordination and elimination of duplicate parts of the research programs being carried out by the two agencies. In 1982, the National Marine Mammal Laboratory assumed responsibility for organizing and convening these coordination meetings.

The first coordination meeting convened by the Laboratory was held in March 1982 and included representatives of the North Slope Borough, the Alaska Eskimo Whaling Commission, the Minerals Management Service, and the oil and gas industry, as well as the Commission and the National Marine Fisheries Service. During the meeting, participants agreed that additional research was needed to: 1) provide a more reliable estimate of annual recruitment; 2) evaluate possible sources of bias in census data; and 3) provide better information on distribution and movement patterns, particularly in and near OCS lease sale areas in the Beaufort Sea. In order to obtain a more reliable estimate of annual recruitment, the National Marine Fisheries Service, following the meeting, obtained funding for additional surveys.

The surveys were carried out by a contractor in August and September 1982 and, in December 1982, another meeting of the planning/coordination group was held to evaluate research progress. The group concluded that further work was needed to improve the estimate of annual recruitment, to determine stock distributions, and to assess the possible direct and indirect effects of offshore oil and gas exploration and development. The group also concluded that the priority tasks were to: 1) continue low altitude aerial surveys to photo-identify and measure individual whales; 2) continue the spring ice camp censuses of whales migrating past Barrow; 3) assess the distribution of whales as they migrate through the nearshore open-water lead to correct or validate census results; 4) continue harvest monitoring and collection of biological information and material from harvested whales; 5) complete analyses of reproductive tracts and other specimen material which had been collected; and 6) continue upgrading and evaluating existing population models. These and a number of related studies were conducted or supported by the North Slope Borough, the National Marine Fisheries Service, the Minerals Management Service, and the NOAA Outer Continental Shelf Environmental Assessment Program in 1983. During the year, the Commission reviewed and commented on several reports from earlier studies and contributed to the preparation of papers concerning population modelling and reanalysis of historical whaling data.

The results of the 1982 research program, and the preliminary results from studies conducted during the summer and autumn of 1983, were reviewed at a program planning/coordination meeting held in Seattle on 13-14 December 1983. From the information presented and discussed at this meeting, it is clear that further work is needed to: determine whether the spring ice camp censuses, which have been done since 1977, are missing segments of the population; improve estimates of the age structure and productivity of the population; identify and characterize feeding areas, breeding areas, and other areas of similar biological importance; and provide more reliable assessments of the possible impacts of offshore oil exploration and development on both the whales and their habitat. The Commission will continue to work with the National Marine Fisheries Service, the Minerals Management Service, and other interested parties to assure that the necessary work is done.

Humpback Whale (*Megaptera novaeangliae*)

Humpback whales occur in all of the world's oceans and, at certain times of the year, can be found in waters off Alaska, Hawaii, and the east and west coasts of the U.S. mainland. All populations were seriously depleted by commercial whaling and, in 1966, the International Whaling Commission prohibited further exploitation. In addition, the humpback whale has been designated as "endangered" under the Endangered Species Act of 1972.

Although commercial exploitation has been prohibited and no longer constitutes a threat to the species, subsistence hunting off Greenland and other human activities still pose threats in some areas. These activities include commercial and recreational boating, offshore oil and gas development, sport and commercial fisheries, and certain coastal development.

Glacier Bay National Park, Alaska

Glacier Bay and surrounding waters in southeast Alaska provide summer habitat for a portion of the North Pacific population of humpback whales. Between 1967 and 1977, about 20-25 whales were observed each summer in Glacier Bay. In 1978 and 1979, however, fewer whales entered the Bay and many of those that did enter remained for shorter periods of time than previously. It was thought that increasing vessel traffic might be at least partially responsible for the whales leaving and avoiding the Bay and, in 1979, the National Park Service established interim regulations to restrict vessel traffic and initiated consultations with the National Marine Fisheries Service to determine whether additional actions might be necessary to assure that humpback whales were not adversely affected by vessel traffic or other activities in Glacier Bay National Park.

In October 1979, the Marine Mammal Commission convened a workshop to review available information concerning the possible reasons why the whales left and were avoiding the Bay and to identify critical gaps in the available data. In December 1979, the National Marine Fisheries Service issued a Biological Opinion as required under Section 7 of the Endangered Species Act. The findings in both instances were recommendations that the National Park Service undertake studies to: 1) characterize the food and feeding behavior of humpback whales in Glacier Bay and surrounding waters; 2) assess the acoustic characteristics of the Bay and vessels operating in the Bay; and 3) compare the behavioral responses of whales to vessels in the Bay and in other areas of southeastern Alaska.

In FY 1981, Congress appropriated special funds to the National Park Service which were transferred to the National Marine Fisheries Service to support the recommended studies. The studies were begun in the spring of 1981 and, in December 1981, the Commission convened a second workshop to review the preliminary results. The workshop participants concluded, among other things, that additional studies were needed and, in 1982, the National Park Service again transferred funds to the National Marine Fisheries Service to continue research on the relationships between whales and prey and whales and boats in Glacier Bay and nearby waters.

On 19-20 May 1983, the National Marine Fisheries Service convened a meeting to review the results of the research carried out in 1981 and 1982. Representatives of the Commission, the National Park Service, the Alaska fishing industry, the tour ship industry, the academic community, and public interest groups participated in the meeting. The National Marine Fisheries Service subsequently reviewed its earlier Biological Opinion in light of the new information and, by letter of 22 June 1983, responded to a National Park Service request to reinitiate the Section 7 consultation concerning endangered humpback whales in Glacier Bay. In its letter, the National Marine Fisheries Service indicated that current Park Service restrictions on vessel numbers and operations were not likely to jeopardize the continued existence of the southeastern Alaska stock of humpback whales, but that the stock likely would be jeopardized if the amount of vessel use were allowed to increase without limit, or if present vessel operational restrictions were removed. The Service also indicated that some increase in the amount of vessel use probably could be permitted without jeopardizing the southeastern Alaska humpback whale stock, provided increases were implemented in a conservative manner and with an appropriate monitoring program.

Regulations promulgated by the National Park Service to control vessel access and operations in Glacier Bay, and to protect humpback whale prey species, expired on 31 August and 31 December 1983, respectively. New regulations, responsive to the findings of the National Marine Fisheries Service's Biological Opinion, presumably will be proposed early in 1984. The Commission, in consultation with its Committee of Scientific Advisors, will review the proposed regulations and other relevant information to determine whether any additional action may be necessary to protect humpback whales or their habitat in Glacier Bay and surrounding waters.

Humpback Whales in Hawaii

A substantial part of the North Pacific humpback whale population inhabits the waters surrounding the main Hawaiian Islands during the winter and spring breeding season. As described in previous Annual Reports, the Commission has worked with the National Marine Fisheries Service and the State of Hawaii to identify and implement research and management programs needed to protect the whales and their habitat.

In late 1977, the National Oceanic and Atmospheric Administration's National Ocean Service, Office of Ocean and Coastal Resource Management, received a proposal to establish a National Marine Sanctuary for humpback whales in Hawaii under the authority of the Marine Protection, Research, and Sanctuaries Act of 1972. Since then, the Commission has consulted informally with the Office, the State of Hawaii, and others to help assess the practicalities of creating a humpback sanctuary in Hawaii and the potential protection it would offer. At its February 1983 meeting in Hawaii, the Commission and its Committee of Scientific Advisors were briefed on the status of both humpback research activities and the marine sanctuary proposal by representatives of the National Marine Fisheries Service, the National Ocean Service, and the State of Hawaii.

During the meeting and subsequent discussions, it became apparent that there was not strong public support for the sanctuary proposal in Hawaii and that the lack of support was largely attributable to confusion about what sanctuary designation actually would entail, particularly with respect to new regulations concerning fishing, boating, and other water activities. To resolve the uncertainties, the Commission, in discussions with State and Federal officials, suggested that the Office of Ocean and Coastal Resource Management draft a proposed schedule for making the necessary determinations, discuss the proposed schedule with interested people in Hawaii and elsewhere, and provide ample opportunity for evaluating and responding to any concerns or proposals.

In May 1983, the Office announced its intent to prepare a Draft Sanctuary Management Plan and a Draft Environmental Impact Statement on the proposed sanctuary. At the same time, it sought State assistance in evaluating several key issues related to management. In response, the State created a Governor's Advisory Committee, which included representatives of a broad range of user interests, to assist in identifying issues and preparing supporting documents. The Draft Management Plan and Draft Environmental Impact Statement are expected to be completed and distributed for review and comment early in 1984.

The Commission, in consultation with its Committee of Scientific Advisors, will review and, as appropriate, comment on the Draft Management Plan and Draft Environmental Impact Statement.

Right Whale (*Eubalaena glacialis*)

The right whale is one of the most endangered of all the large whales. As a result of intensive commercial exploitation in the 19th and early 20th centuries, only small, remnant populations now remain. The extant population along the northeast coast of the United States, for example, has been estimated to number in the low hundreds, perhaps fewer than 200 animals. While the taking of right whales has been prohibited for nearly 50 years, the species' preference for coastal habitats exposes it to a number of human activities which pose new threats to the whales and their habitats.

Recognizing this, the Commission in 1979 contracted with the New England Aquarium to convene a workshop on east coast cetaceans and pinnipeds. Among other things, the workshop identified critical research needs relative to right whales and other species and these subsequently were factored into a general program plan developed by the Commission, in consultation with the National Marine Fisheries Service and others. Funds to implement the general program plan have been provided by several Federal agencies, including the Commission, the National Marine Fisheries Service, and the Minerals Management Service, and private environmental groups.

In June 1983, the Marine Mammal Commission, the National Marine Fisheries Service, the International Whaling Commission, and the World Wildlife Fund jointly sponsored an international workshop to consider available information relating to the present status of right whale populations. The workshop participants concluded that remaining stocks could be classified into three groups: those with population sizes ranging from at least 300 to 500 animals (South Africa and Argentina); those with populations of about 100 to 200 animals (Northwest Atlantic, Northwest Pacific, Southwest Australia, and Southeast Australia/New Zealand); and those with smaller numbers believed to be near extinction (Northeast Atlantic and Northeast Pacific). Noting that even a small kill could adversely affect the recovery of even the largest remaining populations, the participants recommended that no killing

of right whales from any populations be permitted. In addition, because their coastal distribution makes them particularly vulnerable to industrial and other human disturbances, it was recommended that areas critical to right whales' survival and recovery, such as calving and feeding grounds, be managed so as to eliminate such such disturbance of the whale stocks. Finally, the workshop participants recommended that ongoing research be continued and expanded, with priority attention directed toward studies involving photo-identification of individual whales, radio-tracking, sex determination, and determinations of stock discreteness. A report of the workshop's findings and recommendations was transmitted to the IWC's Scientific Committee immediately following the meeting.

As was discussed in last year's Annual Report, the Commission provided funds in 1982 to establish a right whale sighting network in the southeastern United States to determine where the northwest Atlantic right whale population migrates in winter. The final report for this study is expected to be completed in 1984. Upon its completion, the Commission, in consultation with its Committee of Scientific Advisors, will review this and other available information on the status of the northwest Atlantic right whale population to determine further research and management actions that may be necessary to protect and encourage the recovery of this population.

Bottlenose Dolphin (*Tursiops truncatus*)

The bottlenose dolphin is the most common cetacean in the coastal waters of the southeastern United States and is the cetacean species most frequently taken for scientific research and public display. Capture of bottlenose dolphins for these purposes began early in the 1900s and, although records are poor, it may be that as many as 1,800 animals were taken from these coastal waters prior to passage of the Marine Mammal Protection Act of 1972. In the waters of Florida alone, at least 600 animals were taken from 1970 through 1972. Since that time, authorizations have been granted to collect approximately 500 additional bottlenose dolphins from the coastal waters of the southeastern United States.

Despite the considerable number of animals that have been removed from this area, there probably has not been a significant adverse effect on the species as a whole. However,

the species does not occur uniformly throughout its range and a number of more or less discrete or "local" populations may exist. If so, repeated captures and removal of animals from certain areas could have an adverse effect on these local populations. Such effects could be compounded by disturbance and environmental degradation resulting from coastal development, offshore oil and gas development, or other human activities.

The National Marine Fisheries Service is responsible under the Marine Mammal Protection Act for assuring that live-captures and removals do not have significant adverse effects on bottlenose dolphin populations. In 1977, the Service, in consultation with the Commission, developed and adopted a system for regulating the number of bottlenose dolphins to be taken annually from various areas. The following year, again in consultation with the Commission, the Service convened a workshop to define the information needed to accurately identify and assess the status of populations that may have already been affected by the removal of animals and to better determine how many and which animals could be taken from various areas without causing populations to be reduced below their optimum sustainable levels. Subsequently, the Southeast Fisheries Center of the National Marine Fisheries Service developed a long-range plan for assessing and monitoring the number, age/sex composition, and productivity of dolphins in areas where past and current collection activities were focused.

In February 1983, members of the Commission and its Committee of Scientific Advisors met with representatives of the National Marine Fisheries Service and others to review the Service's research and management program for bottlenose dolphins in the southeastern United States. The review indicated that the program was properly oriented and well-directed, but that additional steps should be taken to better assure that local populations of bottlenose dolphins were not being affected adversely by takings and other human activities.

By letter of 16 March 1983 to the National Marine Fisheries Service, the Commission recommended: (1) that the Southeast Fisheries Center be commended for its ongoing efforts to develop an effective research/monitoring program; (2) that available survey data be assessed for evidence of seasonality and, where found, quotas be based on the minimum rather than average population counts or estimates; and (3) that planned surveys be modified or expanded to monitor bottlenose dolphin abundance in areas where live captures and removals were being permitted as well as to provide

better information on regional distribution, abundance, and productivity. The Commission further recommended that no additional live captures be authorized until available survey data were reassessed and quotas were adjusted for seasonal variation in abundance. The Commission asked that it be advised of the results of the seasonality assessment of survey data and any subsequent changes in quotas and that it be informed of what was done to revise or expand the planned regional surveys.

On 8 August 1983, the Service advised the Commission of the results of the seasonality assessment and forwarded the Southeast Fisheries Center's recommendation for revising annual quotas on the take of bottlenose dolphins from various areas. The recommended quotas were based on minimum population estimates and proposed to limit the take of female dolphins to not more than 50 percent of the total annual allowable take within any management area or subarea.

The Commission, in consultation with its Committee of Scientific Advisors, reviewed the recommended quotas and, by letter of 3 November, recommended that they be adopted as proposed. The Commission also asked the Service to advise it as to what had been done with respect to the Commission's 16 March recommendation to modify and expand planned surveys in order to monitor bottlenose dolphin abundance in areas where captures and removals have been permitted.

Gulf of California Harbor Porpoise (*Phocoena sinus*)

Little is known about the Gulf of California harbor porpoise, sometimes called the cochito or vaquita. It is one of the smallest cetaceans and its range appears to be limited to the northern portion of the Gulf of California, Mexico. Because of its size, and the fact that it is elusive and appears to associate in small groups, the species is difficult to sight in the wild. There are only about 20 confirmed records of the species.

In 1976, the Commission provided support for a reconnaissance survey in the northern Gulf of California in order to gain information on the species' status. The study produced a few probable sightings and results suggested that the population was not large and could be declining. In 1979, the Commission contracted for further field research in the northern Gulf. Two probable sightings of pairs or trios of the harbor porpoise were reported during the one-month survey, again suggesting that the species is rare. Its shy nature and the difficulties of observing it in all but the calmest seas, however, make such a conclusion questionable.

Early in 1983, Defenders of Wildlife petitioned the National Marine Fisheries Service to list the Gulf of California harbor porpoise as "threatened" under the Endangered Species Act. To aid in its review of the petition, the Service on 3 June 1983 solicited additional information and comments on the biological status of the species.

The Commission, in consultation with its Committee of Scientific Advisors, reviewed available information on the status of the population and potential threats to its survival and, by letter of 14 September, recommended that the Service list the species "endangered." In support of its recommendation, the Commission noted that: available information suggests both the range and population size of the species are extremely small; the species has been, and may still be, taken incidentally in the course of local fisheries; the ecology of the northern Gulf of California may have been altered significantly in recent decades due to severely reduced fresh-water discharges from rivers; and it would seem that the potential exists for extinction of the species throughout its limited range.

At the end of 1983, the Service was reviewing the petition and the responses to its request for information. Results of this review were expected to be published early in 1984.

Guadalupe Fur Seal (*Arctocephalus townsendi*)

The Guadalupe fur seal is named for its primary pupping and breeding site, the Isla de Guadalupe, 140 miles west of Baja California, and is rarely observed outside the area. Its past distribution and historical population level are unknown because of the failure of early observers to distinguish it from the northern fur seal. Both species are valued for their fur, and the Guadalupe fur seal was so heavily exploited in the early 1900s that, by mid-century, it was thought to be near extinction. Some commercial harvest continued and occasional animals were sighted during the first half of the 20th century. It was not until a breeding colony was discovered on Isla de Guadalupe in 1954, however, that there was any hope for the species' survival. The current population is estimated at 1,500 to 2,000 animals and approximately 200 pups are produced annually. The estimate includes the few individuals which have been sighted on the Channel Islands off southern California in recent years.

Despite this apparent comeback, the threat of extinction has not been eliminated, and on 21 November 1983, the Center for Environmental Education petitioned the National Marine Fisheries Service to list the Guadalupe fur seal as "endangered" under the Endangered Species Act. The Center based its petition on the small and concentrated nature of the population and the threat posed by human activities. These activities include potential competition with fishermen for the same fish, disturbance from fishing camps set up near breeding areas, possible adverse impacts, including oil spills, from planned offshore oil and gas activities, sonic booms resulting from U.S. military and space programs, and tourism. The Center's petition recommends, among other things, a prohibition on fishing and tourist activities near the breeding grounds on Isla de Guadalupe. It also calls for establishment of critical habitat for the species in both Mexican and U.S. waters and for a joint U.S.-Mexican research program on the species.

The Service is expected to publish the results of its status review early in 1984 and the Commission, in consultation with its Committee of Scientific Advisors, will review the issue further and provide comments and recommendations, as appropriate.

Harbor Porpoise (*Phocoena phocoena*)
Central California Population

The harbor porpoise, *Phocoena phocoena*, is found throughout the world's oceans, including the waters off Europe, the Far East, and North America. Because of its inshore distribution, the species is especially vulnerable to adverse effects of human activities, including deterioration and loss of habitat resulting from development and/or environmental contamination and interactions with fisheries.

As discussed in Chapter IV of this Report, in 1983, information became available suggesting that the rapidly growing use of gill and trammel nets in coastal fisheries off northern and central California was causing a large incidental kill of harbor porpoises as well as other marine species. On 10 November 1983, following a careful review of the available information, the Commission, in consultation with its Committee of Scientific Advisors, recommended that the National Marine Fisheries Service take certain steps to better assess and prevent or reduce the incidental take.

The letter pointed out that, based on incidental take rates recorded by the California Department of Fish and Game, it is conservatively estimated that 90 harbor porpoise could be entangled and killed in nets at the present level of fishing in the four-month halibut season from mid-May to mid-September. In addition, records of beach-cast harbor porpoise carcasses showed an alarming increase in numbers in recent years, particularly in 1983. Many of these animals had obvious net marks or other evidence suggesting entanglement. Data from a three-county area in north/central California show that, between 1963 and 1979, an average of 2.4 animals were beach-cast per year. From 1980 to 1982, this average increased to 10.6 per year and, as of the fourth quarter of 1983, 40 harbor porpoise carcasses had already been recovered.

Based on this information, the Commission concluded that gill netting probably had already had a significant adverse effect on the harbor porpoise population off north/central California and it appeared highly unlikely that the population could continue to sustain the present level of fishery-induced mortality. Moreover, since the take is not "insignificant," the need for a permit under the Marine Mammal Protection Act to take marine mammals incidental to commercial fishing operations cannot be waived. With respect to the level of impact, however, the Commission noted that currently available harbor porpoise estimates are not reliable and are probably too low by some unknown magnitude and that it is therefore not possible to estimate the percentage of the population being taken at this time.

The Commission recommended that: (1) the Service immediately undertake consultations with the California Department of Fish and Game to cooperatively assist in the development and implementation of a strategy for remedying this serious problem; 2) the Service, again in cooperation with the California Department of Fish and Game, develop and implement a program to assess and monitor the affected population(s); and 3) the Service advise the Commission, within six weeks, of the steps taken in response to these recommendations.

By the end of 1983, the Service had not responded to the Commission's letter and recommendations. During 1984, the Commission will monitor the actions taken by the Service to assure, insofar as possible, that the problem is effectively addressed.

CHAPTER VII

OUTER CONTINENTAL SHELF OIL AND GAS DEVELOPMENT

Activities and events associated with exploration and development of offshore oil and gas resources may have direct and indirect effects on marine mammals and the ecosystems of which they are a part. The Minerals Management Service has been delegated responsibility by the Secretary of the Interior under the Outer Continental Shelf (OCS) Lands Act, as amended, for predicting, mitigating, and detecting the adverse effects of OCS oil and gas development. The National Marine Fisheries Service and the Fish and Wildlife Service are responsible under the authority of the Marine Mammal Protection Act and the Endangered Species Act for reviewing proposed actions and advising the Minerals Management Service of measures that may be needed to assure that proposed actions will not be to the disadvantage of marine mammals and other wildlife. The Commission reviews the relevant policies and activities of these agencies and recommends actions that appear necessary to conserve marine mammals and their habitats. The Commission's activities in this regard during 1983 are discussed below.

Proposed OCS Lease Sale #73 Offshore Central California

Lease Sale #73, originally scheduled for October 1983, involves 360 blocks (approximately two million acres) of submerged lands off the coast of central California. The tracts are located 3 to 66 miles offshore in water depths ranging from 50 to more than 1,000 meters.

At the request of the Minerals Management Service, the Commission, in consultation with its Committee of Scientific Advisors, reviewed the Draft Environmental Impact Statement (DEIS) on the proposed sale and, on 26 April 1983, forwarded its comments and recommendations to the Service. The Commission noted that at least twenty-nine species of marine mammals, including seven species of endangered whales and the threatened

southern sea otter, occur in the lease sale area. In the Commission's judgment, the DEIS provided an incomplete and, in some cases, contradictory assessment of possible direct and indirect effects on marine mammals, and it suggested, among other things, that the impact assessment be expanded to: provide a more comprehensive synthesis and evaluation of available information on the southern sea otter population; consider an additional alternative of deleting certain tracts in order to minimize the probability of an oil spill contacting areas inhabited by sea otters; consider possible effects on U.S. positions and obligations for managing northern fur seals under the Interim Convention on Conservation of North Pacific Fur Seals; and provide better assessments of possible adverse effects of the proposed action on non-endangered and non-threatened as well as endangered and threatened species and populations of marine mammals.

The Commission noted that preparation of a second draft of at least those sections of the DEIS concerning marine mammals may be necessary to address concerns such as those above, and it recommended that the Minerals Management Service consult with the National Marine Fisheries Service and the Fish and Wildlife Service to get a more realistic assessment of the possible direct and indirect effects of the proposed action and, if necessary, prepare and distribute a second DEIS for review and comment.

The Service's Final Environmental Impact Statement (FEIS) on Proposed Sale #73 was distributed in June 1983. With respect to recommended consultations with other Federal agencies, the Service noted that it was currently working with the National Marine Fisheries Service and the Fish and Wildlife Service in an effort to resolve problems noted in the Commission's comments. However, litigation brought by the California Coastal Commission and certain environmental groups resulted in a delay of Sale #73 and, as of the end of 1983, future activities in the leasing area were uncertain.

Proposed OCS Lease Sale #80
Offshore Southern California

This proposed lease sale covers those unleased blocks in waters off southern California between Point Conception and the California-Mexico border. The sale was originally scheduled for February 1984, but has been postponed indefinitely, pending review. Total area involved is approximately 11.6 million acres. Deleted from the offering are blocks in the Channel Islands National Marine Sanctuary and the Santa Barbara Channel Ecological Reserve (including an associated buffer zone).

The Minerals Management Service's DEIS on the proposed sale noted that six species of pinnipeds and 27 species of cetaceans, including seven endangered species of whales and the rare Guadalupe fur seal, occur in the proposed lease area. The DEIS identified potential low-level impacts on both endangered and non-endangered species that could result from the installation of seven additional oil-drilling platforms in the area. The DEIS also indicated that the cumulative effects of the proposed action, prior lease sales, and tanker traffic from other areas may result in very high impacts on northern fur seals and low-to-moderate impacts on gray whales and possibly on other endangered whales.

The Commission, in consultation with its Committee of Scientific Advisors, commented to the Minerals Management Service on 25 August 1983, noting that the DEIS did not provide an accurate description of the marine mammal fauna in the leasing area or a clear and well-reasoned assessment of possible direct and indirect effects on endangered or non-endangered species or populations in or near the leasing area.

With respect to threatened and endangered marine mammal populations, the Commission noted that most, if not all, of the questions and issues concerning possible effects would presumably be addressed during the formal Section 7 consultations between the Service and the National Marine Fisheries Service and the Fish and Wildlife Service, which were then ongoing. Since similar questions and issues concern possible effects on non-endangered and non-threatened marine mammals, particularly northern fur seals, the Commission recommended that, if the Service had not already done so, it consult with the staff of the National Marine Fisheries Service, Southwest Fisheries Center, as well as other knowledgeable persons, to better determine the possible direct and indirect effects on non-endangered pinnipeds and cetaceans in and near the proposed lease sale area.

Proposed OCS Lease Sale #82
North Atlantic

Proposed Sale #82 involves 4,366 tracts (approximately 25 million acres) of submerged lands off the U.S. northeast coast between Maine and New Jersey. Although the sale was originally scheduled for February 1984, it has been postponed indefinitely, pending review within the Department of the Interior.

Two species of seals and six species of endangered whales occur in or adjacent to the lease sale area. In its DEIS on the proposed sale, the Minerals Management Service concluded that: harbor and gray seals should not be affected substantially by lease sale activities; humpback, fin, and right whales, which concentrate in areas outside the leasing area, should not be affected greatly; and a low-to-moderate level of impact on sperm and sei whales might occur if production activities become concentrated in deeper waters in the outer portion of the lease area.

The Commission, in consultation with its Committee of Scientific Advisors, reviewed the DEIS and forwarded comments to the Service on 9 August 1983. The Commission noted that there appeared to be reasonable justification for the stated conclusions regarding possible effects on gray and harbor seals and fin, sperm, and sei whales, but that available information did not appear to be sufficient to determine the likelihood or significance of possible effects on endangered right or humpback whales. Noting that right and humpback whales migrate seasonally through other existing and proposed east coast OCS leasing areas, the Commission recommended that, if the Service had not already done so, it consult with the National Marine Fisheries Service to determine the adequacy of relevant research and monitoring programs and, if necessary, the need to expand them to detect and mitigate possible cumulative effects of oil and gas activities along the entire U.S. Atlantic coast. The Commission also recommended that available sighting data for right and humpback whales be reexamined and, as supported by those data, that all blocks in the east-central portion of the lease area, which are in or directly adjacent to the spring concentration area for right and humpback whales (i.e., the northern Great South Channel), be deleted from the proposed lease offering. It was suggested that information provided to lessees on bird and marine mammal protection be expanded to include guidance on recommended distances and conduct to be followed by ship and aircraft operators when in the vicinity of endangered whales.

Proposed OCS Lease Sale #83
Navarin Basin, Alaska

The proposed Navarin Basin lease sale, scheduled for March 1984, involves 5,296 blocks (approximately 29.5 million acres) of submerged OCS land in the central Bering Sea off western Alaska. According to the DEIS prepared by the Minerals Management Service, the species of marine mammals found in the area include eight species of endangered

whales, seven species of pinnipeds, eight species of non-endangered cetaceans, sea otters, and polar bears.

The Commission, in consultation with its Committee of Scientific Advisors, reviewed the DEIS and on 17 August 1983 advised the Service that, with respect to marine mammals, the document provided a generally thorough and useful summary and assessment of available information concerning the populations that could be affected and the possible effects of activities that would or could be associated with the proposed action. The Commission also noted that the DEIS proposed several sale-specific mitigation measures which would help reduce possible adverse effects on endangered and non-endangered marine mammals, and recommended that these proposed measures be included as part of the proposed action.

With respect to bowhead whales, ribbon seals, and northern fur seals, however, the Commission noted that discussions in the DEIS appeared to underestimate and/or incorrectly describe the possible effects of activities associated with the proposed action, and it therefore suggested that relevant sections of the DEIS be reviewed and revised as necessary. Other points identified in the Commission's comments suggested that sections of the DEIS be revised or expanded to better indicate: possible cumulative effects of this and other planned or proposed oil and gas activity off Alaska; the magnitude of possible impacts on northern fur seals in the event of a large oil spill contacting haulout and pupping beaches in the Pribilof Islands and/or mitigation and feeding areas in the southeastern Bering Sea; and uncertainties associated with the possible effects of disturbance of endangered whales due to vessel and aircraft operations, seismic exploration, platform construction, drilling operations, and similar activities.

Proposed OCS Lease Sales #81 and #84
Central and Western Gulf of Mexico

Two oil and gas lease sales are proposed for the Gulf of Mexico during 1984: #81 (April) in the central Gulf, involving 39.8 million acres; and #84 (July) in the western Gulf, involving 34.5 million acres. The Minerals Management Service's DEIS on the proposed lease sales noted that five species of endangered whales (fin, humpback, right, sei, and sperm whales) occur in the Gulf of Mexico. While it is

possible that these and other endangered and threatened species may be affected by OCS-related oil spills, collisions with vessels, and disturbances from construction activities, the DEIS concluded that these species are expected to sustain a very low level of impact from the proposed action. The DEIS also noted that proposed activities may affect non-endangered marine mammals, including bottlenose dolphins, and the effects are expected to be at a very low level, with no significant impact on their populations or habitats.

The Commission, in consultation with its Committee of Scientific Advisors, reviewed the DEIS and provided comments to the Service by letter of 31 August 1983. The Commission noted that while the stated conclusion regarding the expected level of impacts on endangered whales seemed appropriate, the information needed to make this determination, including information on abundance, distribution, habitat-use patterns, and food requirements of these species, was not provided in the DEIS. The Commission therefore recommended that the pertinent section of the document be expanded to provide such information for those species and populations occurring in the proposed lease area, and that the discussions be further expanded to include two additional endangered species, the blue whale and the West Indian manatee.

With respect to non-endangered bottlenose dolphins, the Commission questioned whether the conclusions in the DEIS were based on the most recent information available on local populations and it recommended that, if the Service had not already done so, it consult with the National Marine Fisheries Service, Southeast Fisheries Center, to obtain such information and to confirm conclusions regarding the possible effects of OCS activities on these populations. The Commission also noted that bottlenose dolphins may provide useful indicators of the general health of the coastal ecosystems and that assessment and monitoring of local Gulf coast populations would be useful for assuring that offshore oil and gas development does not adversely affect discrete bottlenose dolphin populations. It recommended that consultations be carried out with the Center to determine what, if any, additional measures are needed to assess and monitor possible adverse effects of offshore oil and gas activities on local bottlenose dolphin populations, as well as on other species of non-endangered marine mammals.

Proposed OCS Lease Sale #90
South Atlantic

As part of its preliminary planning for Proposed Sale #90 off the southeastern U.S. coast in 1985, the Minerals Management Service wrote to the Commission on 27 January 1983 requesting that it update information on the South Atlantic OCS Planning Area which it had previously supplied to assist with lease sale planning.

The Commission, in consultation with its Committee of Scientific Advisors, responded to the Service by letter of 14 March 1983. Noting that it had little to add to the information provided in its 22 April 1981 and 13 December 1982 letters concerning the South Atlantic OCS Planning Area (see previous Annual Reports), the Commission restated its recommendation that, if the Service had not already done so, it consult with the National Marine Fisheries Service to determine: if all available sighting and stranding data were considered in re-evaluating the National Marine Fisheries Service's 14 July 1980 Biological Opinion concerning the possible direct and indirect effects of exploration and exploitation activities on endangered cetaceans, especially on right and humpback whales; if these data warrant reassessment of certain conclusions provided in that Biological Opinion; and whether additional information, studies, monitoring programs, or lease stipulations are necessary to assure that right, humpback, or other endangered whales would not be affected adversely by activities in the proposed lease sale area.

In regard to bottlenose dolphins and other non-endangered marine mammals, the Commission restated its 13 December 1982 recommendation that, if the Service had not already done so, it consult with the National Marine Fisheries Service to determine whether local bottlenose dolphin populations might be adversely affected by the proposed action.

The Commission also noted that it was currently funding research both on the North Atlantic right whale population and the bottlenose dolphin and that, once these studies were completed, it would review the resulting reports and certain other available information to determine whether additional steps may be needed to protect right whales or bottlenose dolphins. The results of this review will be provided to the Minerals Management Service.

Proposed OCS 1985 Lease Sales
Gulf of Mexico

As part of the process of preparing a DEIS to cover all lease offerings planned for the Gulf of Mexico in 1985, the Minerals Management Service on 22 July 1983 requested an update of previously provided environmental/resource information pertaining to the area. The Commission, in consultation with its Committee of Scientific Advisors, responded on 29 August, noting that there are two species of marine mammals in the Gulf of Mexico planning area that are of particular concern, the endangered West Indian manatee and the bottlenose dolphin.

As regards the manatee, the Commission noted that the Fish and Wildlife Service, in consultation with the Commission and others, was in the process of preparing a research/management plan for the manatee sub-population in the Crystal River and surrounding areas of northwest Florida and that activities and events associated with offshore oil and gas development in the eastern Gulf of Mexico could have a bearing on implementation of this plan. In its comments, the Commission suggested that, if the Service had not already done so, it obtain a copy of the draft plan and consult with the Fish and Wildlife Service to determine whether there is anything the Minerals Management Service should be doing to facilitate implementation of the plan or to otherwise ensure that the proposed leasing activities would not jeopardize the West Indian manatee.

With respect to the bottlenose dolphin, the Commission noted that the species is the most abundant marine mammal in coastal Gulf waters and, as such, is the marine mammal most likely to be exposed to and perhaps affected by offshore oil and gas activities. The Commission also noted that: assessment and monitoring of bottlenose dolphins in several representative areas along the Gulf coast would be useful for assuring that offshore oil and gas development does not adversely affect local populations of that species or other marine mammals; the Gulf of Mexico Cetacean and Sea Turtle Workshop, sponsored by the Minerals Management Service in April 1982, reached similar conclusions; and the National Marine Fisheries Service has initiated a well-conceived research program to assess and monitor selected populations and sub-populations of bottlenose dolphins in the coastal waters of the southeastern and Gulf states. The Commission recommended that, if the Minerals Management Service had not already done so, it consult with the National Marine Fisheries Service to determine what, if any, further measures may be needed to assess and monitor possible adverse effects that offshore oil and gas development may have on local bottlenose dolphin populations.

Proposed OCS Lease Sale #87
Diapir Field, Alaska

The Diapir Field lease sale, tentatively scheduled for June 1984, involves 3,355 blocks (approximately 18 million acres) of submerged lands in the Beaufort and Chukchi Seas off Alaska's north coast. The DEIS prepared by the Minerals Management Service noted that: four species of endangered whales (bowhead, gray, right, and sei whales) may be affected by the proposed action; it is unlikely that right or sei whales would be adversely affected; oil spills and disturbances associated with the proposed action are likely to have minor effects on gray whales; and the combined effects of noise, other disturbances, and oil spills on bowhead whales are not expected to exceed the moderate level. The DEIS also concluded that the combined effects of offshore oil and gas activities in the area are not expected to exceed moderate levels with regard to non-endangered marine mammals.

The Commission, in consultation with its Committee of Scientific Advisors, forwarded its comments and recommendations to the Service on 10 November 1983. Concerning endangered marine mammals, the Commission noted that most of the conclusions in the DEIS were supported by the information provided, but that additional consideration and analysis were needed with respect to the possible effects of oil spills and disturbance on bowhead whales in their feeding areas, particularly those east of Barter Island in the lease sale area. Since the Biological Opinion being prepared by the National Marine Fisheries Service had not been completed at the time the DEIS was issued, the Commission suggested that potential mitigation measures identified in the DEIS be revised, as necessary, in the FEIS to address any reasonable and prudent alternatives and recommendations identified in the Opinion with respect to protecting endangered whales in the proposed lease sale area.

With respect to non-endangered marine mammals, the Commission noted that the assessment appeared to underestimate possible effects of oil spills and disturbances on polar bears. Among other things, the Commission recommended that the DEIS be expanded to provide further information and analysis concerning: the effect of acoustic and visual disturbances associated with OCS-related facilities and activities on the use of preferred coastal denning sites by pregnant female polar bears; and the likelihood that disposal of food wastes in garbage dumps near construction sites, camps, and other facilities could lure polar bears into

direct contact with humans and result in the death or injury of both bears and people. The Commission recommended that, if the Service had not already done so, it consult with the Fish and Wildlife Service to review the assessment and identify additional mitigation measures that may be necessary and appropriate to ensure that this polar bear population is not adversely affected by the proposed action.

The Minerals Management Service's
Regional Studies Program

As noted above, the Minerals Management Service is responsible for assessing and mitigating the possible adverse effects of offshore oil and gas exploration and development. To help meet this responsibility, the Service has established Regional Environmental Studies Programs which are administered by its OCS offices in New Orleans, Los Angeles, Anchorage, and Vienna, Virginia. The Service also has contracted with the National Oceanic and Atmospheric Administration's Office of Oceanography and Marine Services to plan and administer the Alaska Outer Continental Shelf Environmental Assessment Program (OCSEAP).

To help the Service meet its responsibilities with regard to the conservation and protection of marine mammals, the Commission: reviews and provides comments on regional studies plans, environmental impact statements, and requests for marine-mammal related research proposals developed by the Service; participates in meetings of Technical Proposal Evaluation Committees convened by the Service to review research proposals; and helps plan and participates in meetings to review and coordinate relevant research programs being conducted or planned by the Minerals Management Service, the National Marine Fisheries Service, the Fish and Wildlife Service, and other Federal, State, and private agencies and organizations.

General Program Review

At their meeting in February 1983, the Commission and its Committee of Scientific Advisors met with representatives of the Minerals Management Service, the National Marine Fisheries Service, the Fish and Wildlife Service, and others to review ongoing and planned research aimed at enhancing the protection and recovery of certain marine mammal populations. During the review, representatives of the Minerals Management Service briefed the Commission on:

marine mammal-related studies that had been or were being supported or conducted by the various OCS offices; reports resulting from these studies; the OCS lease-sales scheduled for the next five years; additional marine mammal research or monitoring programs being planned or considered by the various OCS offices; relevant Biological Opinions provided by the Fish and Wildlife Service and the National Marine Fisheries Service under Section 7 of the Endangered Species Act; and lease stipulations, operating orders, and other steps that have been and are being taken to assure that marine mammals and their habitats are not affected adversely by offshore oil and gas exploration and development.

On the basis of information provided prior to and during the general program review, the Commission recommended, among other things, that the Minerals Management Service consult with the National Marine Fisheries Service to: obtain the best available information on local populations of bottlenose dolphins in the coastal waters of the Gulf and southeastern states; confirm conclusions regarding the possible effects of OCS activities on local populations or concentrations of bottlenose dolphins; and determine what, if any, additional measures may be needed to assess, detect, and mitigate the possible adverse effects of offshore oil and gas exploration and development on bottlenose dolphins and other non-endangered species of marine mammals.

Pacific OCS Regional Studies Plan

The Regional Studies Plan, prepared and updated annually by the Pacific OCS Office, describes past and current studies funded by the Office to provide information necessary to predict, assess, and monitor the effects of oil and gas exploration and development offshore California. The plan includes studies to improve knowledge of the demography and dynamics of the California sea otter population and to assess and improve methods for keeping otters away from oil spills and for catching, cleaning, and rehabilitating oiled otters. The Commission's Scientific Program Director has assisted in drafting the scopes of work for these studies, and a Commission representative is serving as a member of the Scientific Review Board constituted by the Minerals Management Service to oversee the design and conduct of the demographic study.

CHAPTER VIII

MARINE MAMMAL MAINTENANCE STANDARDS AND REGULATIONS

On 20 September 1979, the Department of Agriculture's Standards and Regulations for the Humane Handling, Care, Treatment, and Transportation of Marine Mammals went into effect. These Standards, promulgated by the Department of Agriculture under the Animal Welfare Act in response to the Commission's recommendations of 20 October 1975, were the subject of lengthy and extensive correspondence, consultation, and rulemaking which are discussed in the Commission's previous Annual Reports, and include most of the Commission's recommendations transmitted in the course of that process.

The Standards require dealers, research facilities, exhibitors, operators of auction sales, carriers, and intermediate handlers to comply with minimum standards relating to the various aspects of maintenance and transportation of marine mammals in captivity. All such persons or facilities maintaining marine mammals in captivity in the United States must obtain a license from the Department of Agriculture's Animal and Plant Health Inspection Service (APHIS) and must maintain those marine mammals in compliance with the Standards unless a variance has been obtained to allow a limited time for modification or construction of new facilities or other actions necessary to achieve full compliance. Persons and facilities were required to apply for variances within 60 days of the effective date of the Regulations and variances were granted by APHIS for a limited period, usually no more than three years, to allow for the necessary modifications or construction of new facilities. It was anticipated that this variance period would also provide an opportunity to observe and evaluate the practical effects of application of the Standards and to make appropriate changes, as necessary, based upon that experience.

During the succeeding four years, representatives of APHIS consulted with representatives of the Commission, the National Marine Fisheries Service, the Fish and Wildlife Service, the American Association of Zoological Parks and Aquaria, and others concerning the practical effects of application of the Standards and the need for changes. On

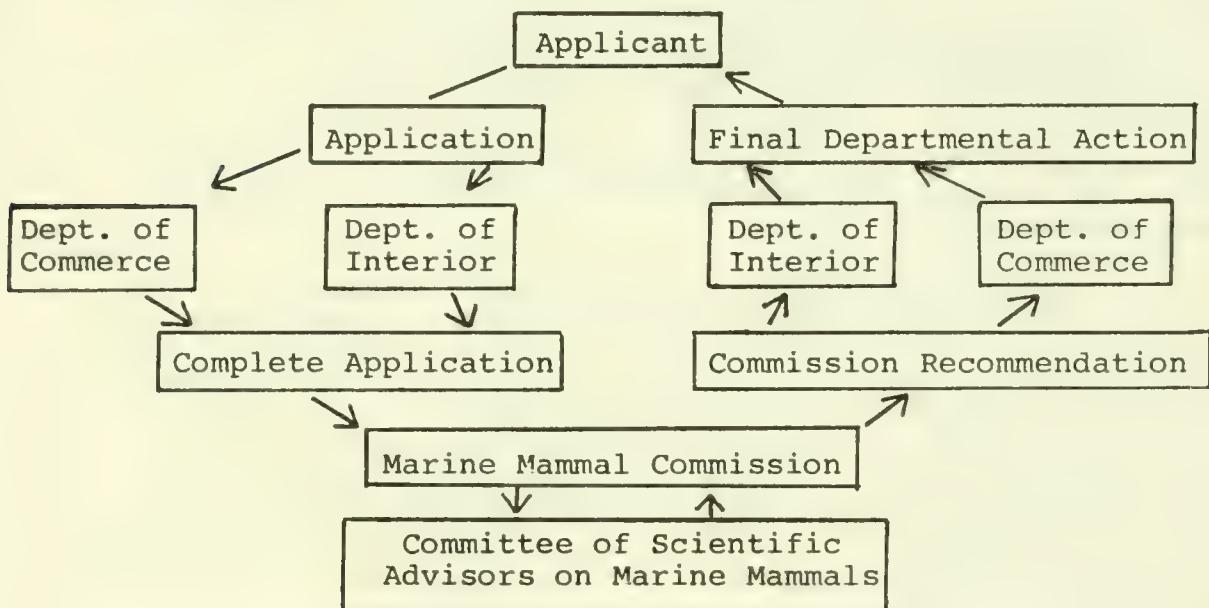
29 July 1983, APHIS published proposed amendments of the Standards in the Federal Register for comment by interested persons. The proposed amendments would change the average adult length of some animals, the required haul-out area for pinnipeds, and certain other provisions of the Standards, relaxing some requirements while tightening others based upon experience over the past years. The Commission transmitted comments to APHIS by letter of 30 September 1983 recommending that the proposed amendments be adopted subject to certain modifications set forth in its letter.

It is anticipated that APHIS will publish final regulations amending the Standards early in 1984. The Commission will continue to consult and cooperate with APHIS and other interested agencies and organizations concerning implementation of the Standards.

CHAPTER IX

PERMIT PROCESS

The Marine Mammal Protection Act places a moratorium, with certain exceptions, on the taking and importing of marine mammals and marine mammal products. One exception is the provision for the issuance of permits by either the Secretary of Commerce or the Secretary of the Interior, depending upon the species of animal involved, for the taking of marine mammals for purposes of scientific research or public display. Prior to the issuance of a permit, the application is reviewed by the Commission in consultation with its Committee of Scientific Advisors on Marine Mammals. The following is a schematic representation of this permit review process.



Application Review

The permit application and review process involves three stages: 1) receipt and initial review of the application at the Department, publication of a notice of receipt of application in the Federal Register, and transmittal to the Commission; 2) review of the application by the Commission

and transmittal of its recommendation to the Department; and 3) final processing by the Department, including consideration of all comments and recommendations of the Commission and the public, resulting in the approval or denial of the application. The total review time (initial receipt of application until final Departmental action) depends on many factors, including: the sufficiency of the information provided by the applicant; special actions, such as inspecting an applicant's marine mammal holding facilities, that may be warranted before a decision can be reached; and the efficiency and thoroughness of those responsible for the review.

During 1983, the Commission made recommendations on 40 applications submitted to the Department of Commerce (including five applications which were received in 1982 but did not receive final action until 1983) and five applications submitted to the Department of the Interior. The Commission's average review time for complete applications was 36 days (median, 30 days). Not included in the preceding statistics are recommendations on four applications which were awaiting final action by the Department of Commerce, one application awaiting final action by the Department of the Interior, and two applications which were under Commission review at year's end. The Commission, in consultation with its Committee of Scientific Advisors, also made recommendations on 18 requests to modify permits during 1983. The average time required for Commission review of these matters was 41 days.

For the 40 applications processed by the Department of Commerce during 1983, it took an average of 91 days (median, 78 days) from the date the application was received by the Department until final action was taken. The five permit applications submitted to the Department of the Interior were processed in an average of 83 days (median, 84 days). If calculated from the date of receipt of a complete application by the Services, the average processing times for the Departments of Commerce and the Interior were 80 and 53 days, respectively, compared to 74 and 75 days, respectively, in 1982.

APPENDIX A

COMMISSION RECOMMENDATIONS: CALENDAR YEAR 1983

12 January Commerce, scientific research permit application, Bruce R. Mate.

17 January Commerce, modification of public display permit, Mystic Marinelife Aquarium.

31 January Commerce, scientific research permit application, Southwest Fisheries Center.

1 February Commerce, modification of scientific research permit, Southwest Fisheries Center.

17 February Commerce, scientific research permit application, Dennis Kelly.

23 February Commerce, modification of scientific research permit, Robert Elsner.

23 February Commerce, public display permit application, Marineland, S.A.

14 March Commerce, public display permit applications, Aquarium of Niagara Falls and Knowsley Safari Park.

14 March Interior, commenting to the Minerals Management Service on information and activities relative to early planning for proposed OCS Lease Sale #90 in the South Atlantic and recommending that, if the Service had not already done so, it consult with the National Marine Fisheries Service to determine, among other things, whether additional information, studies, monitoring programs, and/or lease stipulations are needed to assure that right, humpback, and other endangered whales will not be adversely affected by OCS oil and gas activities in the leasing area and whether local populations of bottlenose dolphins and other non-endangered marine mammals might be adversely affected by such activities.

16 March Commerce, commenting to the National Marine Fisheries Service on its research program on Tursiops truncatus and recommending that: 1) the Southeast Fisheries Center be commended for its ongoing efforts to develop an effective research/monitoring program; 2) available survey data be assessed for evidence of seasonality and, where found, quotas be based on the minimum rather than the average counts or estimates; and 3) planned surveys be modified or expanded to monitor Tursiops abundance in areas where live captures and removals are being permitted, as well as to provide better information on regional distribution, abundance, and productivity.

18 March Interior, commenting to the Fish and Wildlife Service on the draft final report on the sea otter mapping project and recommending that a second draft be prepared, under contract, and sent to the full Technical Review Team for comment.

23 March Commerce, scientific research permit application, Outer Continental Shelf Environmental Assessment Program.

24 March Commerce, modification of scientific research permit, Bolt, Beranek and Newman, Inc.

24 March Commerce, scientific research permit application, Bruce R. Mate.

24 March Commerce, modification of scientific research permit, Hubbs-Sea World Research Institute.

24 March Commerce, modification of public display permit, Sea World, Inc.

24 March Commerce, public display permit application, Wometco Miami Seaquarium.

24 March Interior, modification of scientific research permit, Bolt, Beranek and Newman, Inc.

25 March Interior, scientific research permit application, Richard N. Silverstein.

25 March Commerce, scientific research permit application, Jeffrey D. Goodyear.

1 April Commerce, scientific research permit application, The Whale Museum.

1 April Commerce, scientific research permit application, Southwest Fisheries Center.

18 April Commerce, modification of scientific research permit, James R. Gilbert.

18 April Commerce, scientific research permit application, Allan T. Scholz.

22 April Commerce, scientific research permit application, Randall S. Wells.

26 April Interior, commenting to the Minerals Management Service on a Draft Environmental Impact Statement on OCS Lease Sale #73 and recommending that the Service consult with the National Marine Fisheries Service and the Fish and Wildlife Service to obtain a more realistic assessment of the possible direct and indirect effects of the proposed action on non-threatened and non-endangered, as well as on threatened and endangered, species and populations of marine mammals and that, if necessary, a second Draft Environmental Impact Statement be prepared for review and comment.

27 April Interior, modification of scientific research permit, Carle Foundation Hospital.

20 May Commerce, modification of scientific research permit, Alaska Department of Fish and Game.

20 May Commerce, scientific research permit application, College of the Atlantic.

20 May Commerce, scientific research permit application, Daniel P. Costa.

20 May Interior, scientific research permit application, California Department of Fish and Game.

26 May Interior, scientific research permit application, Kerry Foresman.

7 June Commerce, scientific research permit application, R. F. Brown and Bruce R. Mate.

7 June Commerce, scientific research permit application, Bruce R. Mate and J. R. Harvey.

7 June Commerce, public display permit application, New York Aquarium.

13 June Commerce, scientific research permit application, Point Reyes Bird Observatory.

14 June Commerce, scientific research permit application, Sherman C. Jones.

15 June Commerce, public display permit application, Mystic Marinelife Aquarium.

15 June Commerce, commenting to the National Marine Fisheries Service on the Hawaiian monk seal research and management programs and recommending that the Service take the necessary steps to provide a minimum base level funding of \$300,000 per year for Fiscal Years 1984, 1985, and 1986.

16 June Commerce, scientific permit application, Elizabeth A. Mathews.

17 June Commerce, modification of scientific research permit, Minerals Management Service.

20 June Commerce, scientific research permit application, LGL Ltd. Environmental Research Associates.

20 June Commerce, modification of scientific research permit, National Zoological Park.

20 June Commerce, scientific research permit application, Daniel P. Costa, John M. Francis, and Carolyn B. Heath.

23 June Commerce, public display permit application, Point Defiance Zoo and Aquarium.

23 June Commerce, public display permit application, Ocean Park, Ltd.

26 July Commerce, public display permit application, Flamingo Land Dolphinarium.

26 July Commerce, scientific research permit application, James R. Gilbert.

9 August Commerce, modification of scientific research permit, Southwest Fisheries Center.

9 August Commerce, modification of scientific research permit, Warren M. Zapol and Robert C. Schneider.

9 August Interior, commenting to the Minerals Management Service on the Draft Environmental Impact Statement on proposed OCS Lease Sale #82 off the northeastern U.S. coast and recommending that: 1) if the Service had not already done so, it consult with the National Marine Fisheries Service to determine the adequacy of research and monitoring programs for right and humpback whales; 2) available sighting data for right and humpback whales be re-examined and, as supported by those data, all blocks in the spring concentration area for these species (i.e., the northern Great South Channel) be deleted from the proposed lease offering; and 3) information provided to lessees on bird and marine mammal protection be expanded to include guidance on recommended distances and conduct to be followed by ship and aircraft operators when in the vicinity of endangered whales.

17 August Interior, commenting to the Minerals Management Service on the Draft Environmental Impact Statement on proposed OCS Lease Sale #83 in the Navarin Basin, Alaska, and recommending that certain proposed sale-specific mitigation measures, which would help reduce possible adverse effects on endangered and non-endangered marine mammals, be included as part of the proposed action.

25 August Interior, commenting to the Minerals Management Service on the Draft Environmental Impact Statement on proposed OCS Lease Sale #80 off Southern California; noting that the document does not provide a clear or well-reasoned assessment of possible direct and indirect effects on endangered and non-endangered marine mammals and recommending that, if the Service had not already done so, it consult with the National Marine Fisheries Service and other knowledgeable persons to better determine the possible direct and indirect effects of the proposed action on non-endangered and non-threatened marine mammals that occur in or near the lease sale area.

29 August Interior, public display permit application, San Francisco Zoological Garden.

29 August Interior, public display permit application, Toba Aquarium.

29 August Commerce, scientific research permit application, Roger S. Payne.

30 August Commerce, modification of scientific research permit, Donald B. Siniff.

31 August Interior, commenting to the Minerals Management Service on the Draft Environmental Impact Statement on proposed OCS Lease Sales #81 and #84 in the central and western Gulf of Mexico and recommending that, if the Service had not already done so, it consult with the National Marine Fisheries Service to: 1) obtain the most recent information available on local populations of bottlenose dolphins; 2) confirm conclusions regarding possible effect of OCS activities on these populations; and 3) determine what, if any, additional measures are needed to assess and monitor adverse effects of offshore oil and gas activities on local bottlenose dolphin populations and non-endangered species of marine mammals.

6 September Commerce, public display permit application, Sea World, Inc.

6 September Commerce, scientific research permit application, William M. Hamner.

6 September Commerce, scientific research permit application, Kenneth C. Balcomb, III.

8 September Commerce, modification of public display permit, Aquarium of Niagara Falls.

8 September Commerce, public display permit application, Mystic Marinelife Aquarium.

13 September Interior, public display permit application, Izu-Mito Sea Paradise.

14 September Commerce, commenting to the National Marine Fisheries Service on the biological status of the Gulf of California harbor porpoise (Phocoena sinus) and recommending that the species be designated as endangered under the Endangered Species Act of 1973.

14 September Interior, commenting to the Fish and Wildlife Service on programs being carried out by the Service and others on the California or southern sea otter and on implementation of the Southern Sea Otter Recovery Plan and recommending that steps be taken promptly to: 1) expedite assessment of sea otter mortality in gill and trammel nets and adopt necessary measures to either prohibit or significantly reduce such incidental taking; 2) determine the optimal design and establish agreed-upon schedules and procedures for conducting periodic population surveys; 3) complete the Sea Otter Mapping Project; 4) select a translocation site or sites and develop a proposed translocation plan(s) that can be subjected to legal, environmental, and economic evaluation and assessment; 5) develop and begin implementing an agreed-upon plan for assessing alternative methods for protecting and containing sea otters in designated zones; 6) facilitate the compilation, evaluation, and publication

of existing survey, tagging, and mortality data; 7) update the Southern Sea Otter Recovery Plan and initiate development of a Comprehensive Work Plan; and 8) engage a full-time Sea Otter Activities Coordinator.

15 September Commerce, public display permit application, Seoul Grand Park Zoo.

30 September Agriculture, commenting to the Animal and Plant Health Inspection Service on proposed amendments to regulations for the humane handling, care, treatment, and transportation of marine mammals and recommending that the amendments be adopted, subject to certain modifications.

11 October Commerce, public display permit application, Sea World, Inc.

12 October Commerce, public display permit application, Marineland, S.A.

24 October Commerce, public display permit application, Jardin Zoologique de Quebec.

24 October Commerce, modifications of scientific research permit, Manomet Bird Observatory.

26 October Interior, modification of public display permit, San Francisco Zoo.

28 October Interior, modification of scientific research permit, Denver Wildlife Research Center.

3 November Commerce, recommending to the National Marine Fisheries Service that it adopt proposed yearly quotas on the take of Tursiops truncatus in the Southeast Region.

10 November Commerce, commenting to the National Marine Fisheries Service on the impact of California gill and trammel net fisheries on certain populations of marine mammals and recommending that the Service: 1) undertake consultations with the California Department of Fish and Game to cooperatively assist in the development and implementation of a strategy to remedy the problem; 2) work

with the California Department of Fish and Game to develop and implement a program to assess and monitor the populations; and 3) report back to the Commission within six weeks on the steps taken.

10 November

Interior, commenting to the Minerals Management Service on the Draft Environmental Impact Statement on the proposed Diapir Field Lease Offering and recommending that the document be modified by: 1) expanding the list of potential mitigation measures to include research and monitoring programs that would provide a basis for assessing and improving the effectiveness of other mitigation measures; 2) providing additional assessment of the possible effects of oil spills and disturbances on polar bears; and 3) providing additional assessment of the potential direct and indirect effects on bowhead whales from oil spills and disturbances in important feeding grounds in the lease area.

18 November

Commerce, commenting to the National Marine Fisheries Service on the entanglement of marine mammals in lost or discarded fishing gear and other debris and recommending, among other things, that: the Service promptly initiate certain steps to plan, organize, and convene an international workshop to address the net entanglement problem; the National Oceanic and Atmospheric Administration's Office of General Counsel identify and evaluate all domestic and international authorities that might be used to prevent further dumping of gear and debris and to facilitate recovery of materials already discarded; the Service request that the Department of State take necessary steps to gather similar information with respect to the domestic authorities of other involved countries; the Service undertake studies concerning ways in which a net might best be marked so as to show its provenance in the event of recovery; the Service immediately start identifying critical data gaps so as to develop programs as may be needed to determine the types,

quantity, size, and distribution of net fragments and other debris and the likely fate of these materials; and the Service assign a high-level administrator/scientist responsibility for overall management of all aspects of the net entanglement program.

22 November	Commerce, scientific research permit application, Southwest Fisheries Center.
25 November	Commerce, public display permit application, Marine Animal Productions.
9 December	Commerce, public display permit application, Marineland, Inc.
9 December	Commerce, scientific research permit application, Moclips Cetological Society.
15 December	Interior, commenting to the Fish and Wildlife Service on the population status of the California sea otter and recommending that: 1) the species should not be removed from the Endangered Species List; 2) consideration be given to changing the status from "threatened" to "endangered"; and 3) the status of the population be re-examined late in 1984.
16 December	Interior, modification of scientific research permit, Bolt, Beranek and Newman, Inc.
29 December	Commerce, public display permit application, Acuaticland, S.A.

APPENDIX B

REPORTS ON COMMISSION-SPONSORED RESEARCH ACTIVITIES
AVAILABLE FROM THE
NATIONAL TECHNICAL INFORMATION SERVICE (NTIS) *

Ainley, D.G., H.R. Huber, R.P. Henderson, and T.J. Lewis. 1977. Studies of marine mammals at the Farallon Islands, California, 1970-1975. Final report for MMC contract MM4AC002. NTIS PB-274 046. 42 pp. (A03)

_____, H.R. Huber, R.P. Henderson, T.J. Lewis, and S.H. Morrell. 1977. Studies of marine mammals at the Farallon Islands, California, 1975-1976. Final report for MMC contract MM5AC020. NTIS PB-266 249. 32 pp. (A03)

_____, H.R. Huber, R.R. LeValley, and S.H. Morrell. 1978. Studies of marine mammals at the Farallon Islands, California, 1976-1977. Final report for MMC contract MM6AC027. NTIS PB-286 603. 44 pp. (A03)

Allen, S.G., D.G. Ainley, and G.W. Page. 1980. Haul out patterns of harbor seals in Bolinas Lagoon, California. Final report for MMC contract MM8AC012. NTIS PB80-176 910. 31 pp. (A03)

Balcomb, K.C., J.R. Boran, R.W. Osborne, and N.J. Haenel. 1980. Observations of killer whales (Orcinus orca) in greater Puget Sound, State of Washington. Final report for MMC contract MM1300731-7. NTIS PB80-224 728. 42 pp. (A03)

Beddington, J.R. and H.A. Williams. 1980. The status and management of the harp seal in the north-west Atlantic. A review and evaluation. Final report for MMC contract MM1301062-1. NTIS PB80-206 105. 127 pp. (A07)

Bengtson, J.L. 1978. Review of information regarding the conservation of living resources of the Antarctic marine ecosystem. Final report for MMC contract MM8AD055. NTIS PB-289 496. 148 pp. (A08)

Bockstoce, J. 1978. A preliminary estimate of the reduction of the western Arctic bowhead whale (Balaena mysticetus) population by the pelagic whaling industry: 1848-1915. Final report for MMC contract MM7AD111. NTIS PB-286 797. 32 pp. (A08)

* Price codes for printed reports (including postage) are shown in parentheses at the end of each citation. Microfiche copies of the reports are also available (price code A01). The key to the codes and ordering information can be found on the last page.

Brownell, R.L., Jr., C. Schonewald, and R.R. Reeves. 1979. Report on world catches of marine mammals: 1965-1976. Final report for MMC contract MM6AC002. NTIS PB-290 713. 353 pp. (A16)

Chapman, D.G., L.L. Eberhardt, and J.R. Gilbert. 1977. A review of marine mammal census methods. Final report for MMC contract MM4AC014. NTIS PB-265 547. 55 pp. (A04)

Committee to Evaluate Antarctic Marine Ecosystem Research, National Research Council. 1981. An evaluation of Antarctic marine ecosystem research. National Academy Press, Washington, D.C. 99 pp. *

Contos, S.M. 1982. Workshop on marine mammal-fisheries interactions. Final report for MMC contract MM2079341-0. NTIS PB82-189507. 64 pp. (A04)

Cornell, L.H., E.D. Asper, K. Osborn, and M.J. White, Jr. 1977. Investigations on cryogenic marking procedures for marine mammals. Final report for MMC contract MM6AC003. NTIS PB-291 570. 24 pp. (A03)

Dayton, P.K., B.D. Keller, and D.A. Ven Tresca. 1980. Studies of a nearshore community inhabited by sea otters. Final report for MMC contracts MM6AC026 and MM1300702-9. NTIS PB81-109 860. 91 pp. (A06)

DeBeer, J. 1980. Cooperative dedicated vessel research program on the tuna-porpoise problem; overview and final report. Final report for MMC contract MM8AC006. NTIS PB80-150 097. 43 pp. (A03)

Dohl, T.P. 1981. Remote laser branding of marine mammals. Final Report for MMC contract MM4AC011. NTIS PB81-213449. 34 pp. (A03)

Erickson, A.W. 1978. Population studies of killer whales (Orcinus orca) in the Pacific Northwest: a radio-marking and tracking study of killer whales. Final report for MMC contract MM5AC012. NTIS PB-285 615. 34 pp. (A03)

Fay, F.H., H.M. Feder, and S.W. Stoker. 1977. An estimation of the impact of the Pacific walrus population on its food resources in the Bering Sea. Final report for MMC contracts MM4AC006 and MM5AC024. NTIS PB-273 505. 38 pp. (A03)

* Available from the Polar Research Board, National Academy of Sciences, 2101 Constitution Avenue, N.W., Washington, D.C. 20418.

Foster, M.A. 1981. Identification of ongoing and planned fisheries in the Northwestern Hawaiian Islands. Final report for MMC contract MM1801069-7. NTIS PB81-207516. 52 pp. (A05)

Foster, M.S., C.R. Agegian, R.K. Cowen, R.F. Van Waggenen, D.K. Rose, and A.C. Hurley. 1979. Toward an understanding of the effects of sea otter foraging on kelp forest communities in central California. Final report for MMC contract MM7AC023. NTIS PB-293 891. 60 pp. (A04)

Fowler, C.W., W.T. Bunderson, M.B. Cherry, R.J. Ryel, and B.B. Steele. 1980. Comparative population dynamics of large mammals: A search for management criteria. Final report for MMC contract MM7AC013. NTIS PB80-178 627. 330 pp. (A15)

_____, R.J. Ryel, and L.J. Nelson. 1982. Sperm whale population analysis. Final report for MMC contract MM8AC009. NTIS PB82-174335. 35 pp. (A03)

Gaines, S.E. and D. Schmidt. 1978. Laws and treaties of the United States relevant to marine mammal protection policy. Final report for MMC contract MM5AC029. NTIS PB-281 024. 668 pp. (A99)

Gard, R. 1978. Aerial census, behavior, and population dynamics study of gray whales in Mexico during the 1974-75 calving and mating season. Final report for MMC contract MM5AC006. NTIS PB-274 295. 18 pp. (A02)

_____, 1978. Aerial census and population dynamics study of gray whales in Baja California during the 1976 calving and mating season. Final report for MMC contract MM6AC014. NTIS PB-275 297. 20 pp. (A03)

Geraci, J.R. and D. St. Aubin. 1979. The biology of marine mammals: insights through strandings. Final report for MMC contract MM7AC020. NTIS PB-293 890. 343 pp. (A16)

_____, S.A. Testaverde, D.J. St. Aubin, and T.H. Loop. 1978. A mass stranding of the Atlantic whitesided dolphin, Lagenorhynchus acutus: a study into pathobiology and life history. Final report for MMC contract MM5AC008. NTIS PB-289 361. 165 pp. (A08)

Gerrodette, T. 1983. Review of the California sea otter salvage program. Final report for MMC contract MM2629677-5. NTIS PB83-262949. 23 pp. (A03)

Gilbert, J.R., V.R. Schurman, and D.T. Richardson. 1979. Gray seals in New England: present status and management alternatives. Final report for MMC contract MM7AC002. NTIS PB-295 599. 40 pp. (A03)

Gold, J. 1981. Marine mammals: A selected bibliography. NTIS PB82-104282. 91 pp. (A05)

Gonsalves, J.T. 1977. Improved method and device to prevent porpoise mortality application of polyvinyl panels to purse seine nets. Final report for MMC contract MM6AC007. NTIS PB-275 088. 28 pp. (A03)

Goodman, D. 1978. Management implications of the mathematical demography of long-lived animals. Final report for MMC contract MM8AD008. NTIS PB-289 678. 80 pp. (A05)

Green, K.A. 1977. Antarctic marine ecosystem modeling revised Ross Sea model, general Southern Ocean budget, and seal model. Final report for MMC contract MM6AC032. NTIS PB-270 375. 111 pp. (A06)

Green-Hammond, K.A. 1980. Fisheries management under the Fishery Conservation and Management Act, the Marine Mammal Protection Act, and the Endangered Species Act. Final report for MMC contract MM1300 885-3. NTIS PB80-180 599. 186 pp. (A09)

1981. Requirements for effective implementation of the Convention on the Conservation of Antarctic Marine Living Resources. Final report for MMC contract MM2079173-9. NTIS PB82-123571. 36 pp. (A03)

1982. Environmental aspects of potential petroleum exploration and exploitation in Antarctica: Forecasting and evaluating risks. Final report for MMC contract MM2079173-9. NTIS PB82 169772. 28 pp. (A03)

, D.G. Ainley, D.B. Siniff, and N.S. Urquhart. 1983. Selection criteria and monitoring requirements for indirect indicators of changes in the availability of Antarctic krill applied to some pinniped and seabird information. Final report for MMC contract MM2324753-6. NTIS PB83-263293. 37 pp. (A03)

Herman, L.M., P.H. Forestell, and R.C. Antinoja. 1980. The 1976/77 migration of humpback whales into Hawaiian waters: composite description. Final report for MMC contracts MM7AC014 and MM1300907-2. NTIS PB80-162 332. 55 pp. (A04)

Hofman, R.J. (Editor). 1979. A workshop to identify new research that might contribute to the solution of a tuna-porpoise problem. Proceedings of a Marine Mammal Commission-sponsored workshop held on 8 and 9 December 1975, at the University of California, Santa Cruz. NTIS PB-290 158. 17 pp. (A02)

1982. Identification and assessment of possible alternative methods for catching yellowfin tuna. NTIS PB83-138933. 243 pp. (A11)

Huber, H.R., D.G. Ainley, S.H. Morrell, R.R. LeValley, and C.S. Strong. 1979. Studies of marine mammals at the Farallon Islands, California 1977-1978. Final report for MMC contract MM7AC025. NTIS PB-111 602. 50 pp. (A04)

_____, D.G. Ainley, S.H. Morrell, R.J. Boekelheide, and R.P. Henderson. 1980. Studies of marine mammals at the Farallon Islands, California, 1978-1979. Final report for MMC contract MM1300888-2. NTIS PB80-178 197. 46 pp. (A04)

_____, D.G. Ainley, R.J. Boekelheide, R.P. Henderson, and B. Bainbridge. 1981. Studies of marine mammals at the Farallon Islands, California, 1979-1980. Final report for MMC contract MM1533599-3. NTIS PB81-167082. 51 pp. (A04)

Hui, C.A. 1978. Reliability of using dentin layers for age determination in Tursiops truncatus. Final report for MMC contract MM7AC021. NTIS PB-288 444. 25 pp. (A03)

Irvine, A.B., M.D. Scott, R.S. Wells, J.H. Kaufmann, and W.E. Evans. 1979. A study of the activities and movements of the Atlantic bottlenosed dolphin, Tursiops truncatus, including an evaluation of tagging techniques. Final report for MMC contracts MM4AC004 and MM5AC018. NTIS PB-298 042. 54 pp. (A04)

Johnson, B.W. and P.A. Johnson. 1978. The Hawaiian monk seal on Laysan Island: 1977. Final report for MMC contract MM7AC009. NTIS PB-285428. 38 pp. (A03)

_____. 1981. Estimating the Hawaiian monk seal population on Laysan Island. Final report for MMC contract MM15337014. NTIS PB82-109398. 79 pp. (A05)

_____. 1981. The Hawaiian monk seal on Laysan Island: 1978. Final report for MMC contract MM8AC008. NTIS PB82-109661. 17 pp. (A02)

Johnson, M.L. and S.J. Jeffries. 1977. Population evaluation of the harbor seal (Phoca vitulina richardii) in the waters of the State of Washington. Final report for MMC contract MM5AC019. NTIS PB-270 376. 27 pp. (A03)

_____. 1983. Population biology of the harbor seal (Phoca vitulina richardii) in the waters of the State of Washington: 1976-1977. Final report for MMC contract MM6AC025. NTIS PB83-159 715. 53 pp. (A04)

Kasuya, T. and Y. Izumizawa. 1981. The fishery-dolphin conflict in the Iki Island area of Japan. Final report for MMC contract MM1533791-7. NTIS PB81-171357. 31 pp. (A03)

Katona, S.K. 1983. The Gulf of Maine Whale Sighting Network. Final report for MMC contract MM6AC018. NTIS PB83 151290. 32 pp. (A03)

— and S. Kraus. 1979. Photographic identification of individual humpback whales (Megaptera novaeangliae): evaluation and analysis of the technique. Final report for MMC contract MM7AC015. NTIS PB-298 740. 29 pp. (A03)

Kooyman, G.L. 1982. Development and testing of a time-depth recorder for marine mammals. Final report for MMC contract MM6AC019. NTIS PB82-257932. 10 pp. (A02)

Leatherwood, J.S., R.A. Johnson, D.K. Ljungblad, and W.E. Evans. 1977. Broadband measurements of underwater acoustic target strengths of panels of tuna nets. Final report for MMC contract MM6AC020. Naval Ocean Systems Center Tech. Report 126. 19 pp. *

Loughlin, T. 1978. A telemetric and tagging study of sea otter activities near Monterey, California. Final report for MMC contract MM6AC024. NTIS PB-289 682. 64 pp. (A04)

Marine Mammal Commission. 1974. Annual Report of the Marine Mammal Commission, Calendar Year 1973. Report to Congress. NTIS PB-269 709. 14 pp. (A03)

— 1975. Annual Report of the Marine Mammal Commission, Calendar Year 1974. Report to Congress. NTIS PB-269 710. 27 pp. (A04)

— 1976. Annual Report of the Marine Mammal Commission, Calendar Year 1975. Report to Congress. NTIS PB-269 711. 50 pp. (A04)

— 1977. Annual Report of the Marine Mammal Commission, Calendar Year 1976. Report to Congress. NTIS PB-269 713. 71 pp. (A06)

— 1978. Annual Report of the Marine Mammal Commission, Calendar Year 1977. Report to Congress. NTIS PB-281 564. 101 pp. (A06)

— 1979. Annual Report of the Marine Mammal Commission, Calendar Year 1978. Report to Congress. NTIS PB-106 784. 108 pp. (A06)

* Available from the Naval Ocean Systems Center, San Diego, California 92152.

1980. Humpback whales in Glacier Bay National Monument, Alaska. Final report for an interagency review meeting. NTIS PB80-141 559. 44 pp. (A03)

1981. Annual report of the Marine Mammal Commission, Calendar Year 1979. Report to Congress. NTIS PB81-247892. 100 pp. (A06)

1981. Annual report of the Marine Mammal Commission, Calendar Year 1980. Report to Congress. NTIS PB81-247884. 114 pp. (A06)

1982. Annual Report of the Marine Mammal Commission, Calendar Year 1981. Report to Congress. NTIS PB82-221 425. 102 pp. (A06)

1982. Report of a meeting to review on-going and planned research concerning humpback whales in Glacier Bay and surrounding waters in southeast Alaska. Final report of an interagency meeting. NTIS PB82-201039. 20 pp. (A02)

Mate, B.R. 1977. Aerial censusing of pinnipeds in the eastern Pacific for assessment of population numbers, migratory distributions, rookery stability, breeding effort, and recruitment. Final report for MMC contract MM5AC001. NTIS PB-265 859. 67 pp. (A04)

1980. Workshop on marine mammal-fisheries interactions in the northeastern Pacific. Final report for MMC contract MM8AC003. NTIS PB80-175 144. 48 pp. (A04)

Mathisen, O.A. 1980. Methods for the estimation of krill abundance in the Antarctic. Final report for MMC contract MM7AC032. NTIS PB80-175 151. 26 pp. (A03)

Matkin, C.O. and F.H. Fay. 1980. Marine mammal-fishery interactions on the Copper River and in Prince William Sound, Alaska, 1978. Final report for MMC contract MM8AC013. NTIS PB80-159 536. 71 pp. (A05)

Mayo, C.A. 1982. Observations of cetaceans: Cape Cod Bay and southern Stellwagen Bank Massachusetts 1975-1979. Final report for MMC contract MM1800925-5. NTIS PB82-186263. 68 pp. (A05)

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APPENDIX C

SCIENTIFIC LITERATURE RESULTING FROM COMMISSION-SPONSORED
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